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CLINICAL SIGNS OF DIAGNOSTIC IMPORTANCE IN CONJUNCTIVITIS

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There has been increasing recognition of the importance of a causal diagnosis in conjunctivitis in recent years, due no doubt to the fact that specific chemotherapy has been made available for a number of important types of the disease. In addition to its value as a guide to therapy, causal determination is important for prognosis, since it is obviously often of great value to be able to predict accurately the clinical course and outcome of a conjunctival infection.

In routine office practice facilities for bacteriologic and pathologic examination are frequently not available, and advantage must therefore be taken of such causal indications as can be obtained from careful gross and slit lamp examination of the conjunctiva and the contiguous structures. It is not generally recognized that reliable differentiation of many of the major types of conjunctivitis can be made on clinical examination alone, independently of laboratory observations. The following report discusses these clinical observations and their diagnostic significance.

THE DIAGNOSTIC VALUE OF PREAURICULAR ADENOPATHY

Enlargement of the preauricular lymph nodes which drain the conjunctiva is almost unknown in catarrhal or purulent conjunctivitis of bacterial origin, although transient swelling of the nodes is occasionally seen in severe hordeola, particularly the internal variety. Enlargement of the nodes is, however, a characteristic of certain special types of conjunctival disease, especially of those caused by viruses and fungi.

Three types of adenopathy are seen. In the first type there is a palpable, nontender or only slightly tender enlargement of the nodes, not grossly visible. This type is characteristic of acute follicular conjunctivitis, particularly acute follicular conjunctivitis Béal,[1] and of inclusion conjunctivitis. In rare instances it is seen in acute trachoma but never in chronic or low grade trachoma. The second type is a visible but not grossly prominent adenopathy in which the nodes are tender to palpation and in which the sublingual and submaxillary nodes are sometimes involved. This type of change is characteristic of epidemic keratoconjunctivitis[2] and of the rare cases of acute herpetic conjunctivitis. The third type of nodular change is a grossly visible adenopathy which constitutes a prominent feature of the disease and produces gross disfigurement; suppuration of the nodes in this type is not infrequent. It is this type of adenopathy which is characteristic of the oculoglandular syndrome of Parinaud which includes such various conjunctivitides as leptotrichosis conjunctivae, tuberculosis of the conjunctiva, lymphogranuloma venereum conjunctivitis, syphilis of the conjunctiva, oculoglandular tularemia, etc.

Preauricular adenopathy is only rarely seen in any other types of conjunctivitis except, of course, as it may occur as part of a general enlargement of the lymph nodes. Palpation of the preauricular nodes should therefore be a routine part of the examination of any conjunctival disease of unknown causation.

THE DIAGNOSTIC VALUE OF CHANGES IN THE LID MARGINS

Blepharitis[3] is often the source of chronic conjunctivitis and neglect of examination of the lid margins may result in failure to recognize and treat the primary focus of a conjunctivitis resistant to all local conjunctival therapy. The blepharitis may occasionally be so mild as to be overlooked in gross examination, but in this event examination with the slit lamp readily reveals the abnormal condition of the margin. The cause of the conjunctivitis is often indicated by the appearance of the blepharitis. Diplobacillary infection, for example, is typically angular and spares the meibomian glands and follicles of the cilia, whereas the staphylococcic variety has a considerable tendency to involve these structures; the occurrence of ulcers at the bases of the cilia may in fact be considered pathognomonic of staphylococcic infection.

Seborrheic dermatitis of the eyelids, when uncomplicated with secondary infection, is recognized by the heavy, soft, greasy scales which are far different from the hard, dry, tenacious crusts of staphylococcic blepharitis. When seborrheic dermatitis is suspected it is always well to examine the scalp, since a severe infection of the scalp usually precedes the infection of the lid margins.

Meibomitis, with or without blepharitis, is also often the source of a chronic conjunctivitis, and digital expression of the meibomian glands and observation of the expressed material should be a part of the routine examination of the conjunctiva in conjunctivitis. The abnormality of the secretion is recognized by its copious amount and by its color and consistency. The normal meibomian secretion is a thin transparent oil.

Read before the Section on Ophthalmology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

1. Béal, R.: Sur une forme particulière de conjonctivite aigue avec follicules, Ann. d'ocul. **137**: 1, 1907.
2. Hogan, M. J., and Crawford, J. W.: Epidemic Kerato-Conjunctivitis, Am. J. Ophth. **25**: 1059, 1942.
3. Thygeson, P.: The Etiology and Treatment of Blepharitis: A Study in Military Personnel, Mil. Surgeon **98**: 191 and 279, 1946.

Many ophthalmologists forget that the common wart [4] and the nodule of molluscum contagiosum,[5] when they occur on the margin of the lid, usually produce chronic conjunctivitis and keratitis. A molluscum nodule, particularly when on the lower lid, may be inconspicuous and readily overlooked.

Residual swelling from recurrent styes indicates a residual staphylococcic infection of the lid margins which may well be the source of a chronic conjunctivitis.

Chronic edema of the eyelids due to blockage of lymph vessels is a characteristic feature of lymphogranuloma venereum keratoconjunctivitis [6] and can be considered almost pathognomonic of the infection.

Abnormalities of the Puncta and the Canaliculi.—Swelling, redness and dilatation of one or both lacrimal puncta is characteristic of Streptothrix concretions, which constitute an important cause of unilateral conjunctivitis. The diagnosis can be made by expression of cheesy concretion material from the punctum by pressure along the canaliculus. Microscopic examination of this material always shows Streptothrix elements.

CONJUNCTIVAL CHANGES OF DIAGNOSTIC IMPORTANCE

Minor Changes.—All types of infectious conjunctivitis are characterized by the brilliant red color of the conjunctiva due to hyperemia and formation of new vessels. Allergic inflammations, on the other hand, have a characteristically milky appearance. This is often striking, particularly in vernal catarrh, and is useful for diagnosis. It is probably due to the predominance of edema over cellular infiltration in allergic inflammations.

Small subconjunctival hemorrhages involving the bulbar conjunctiva suggest influenza bacilli or Koch-Weeks conjunctivitis, but their diagnostic value is by no means clearcut, as they may also occur, although much more rarely, in other types of bacterial infection, notably pneumococcic infections.

Bulbar chemosis should immediately suggest gonococcic conjunctivitis, of which it is often an early sign, occurring even before the appearance of gross cellular infiltration and exudation. It may occur rarely, however, in other severe conjunctival infections, and its value as an early sign in trichinosis should never be overlooked. In this condition there is no inflammation of the conjunctiva proper.

The character of the conjunctival secretion is of some diagnostic value. The secretion from allergic conjunctivitis, particularly vernal catarrh, has a high fibrin content and is stringy in character in contrast to the flaky or amorphous exudate of an ordinary bacterial infection. A foamy, whitish secretion collecting at both inner and outer angles always suggests conjunctivitis due to, or associated with, an overactivity of the meibomian glands. A scanty secretion in the presence of an acute conjunctival inflammation is always suggestive of a virus infection.

Papillary Hypertrophy.—The microscopic type of papillary hypertrophy, which gives the velvety appearance to many types of acute and chronic conjunctivitis, carries no diagnostic significance. The gross variety, on the other hand, which is often known as giant papillary hypertrophy and of which the palpebral hypertrophy in vernal catarrh is the outstanding example, is of great diagnostic value. Its occurrence on the upper tarsal conjunctiva, most prominently near the upper border, is almost diagnostic of vernal catarrh. Otherwise it is seen extremely rarely and only in chronic infections of great severity such as chronic gonococcic conjunctivitis. I saw this condition a number of times in Egypt and Tunisia but never have seen it in this country. This type of papillary hypertrophy has sometimes been confused with follicular hypertrophy, but when doubt occurs, examination with the slit lamp permits easy differentiation, since the follicle has an avascular center whereas the papilla has a central vascular core.

Follicular Hypertrophy.—The conjunctiva has a normal adenoid layer, and an occasional lymphoid follicle may be seen in the conjunctiva of young persons, particularly in the fornices. Follicles are never seen on the normal tarsal conjunctiva, however. The diagnostic value of the follicle depends primarily on its location and secondarily on its consistency and relative prominence. Thus, follicles involving the upper tarsal conjunctiva are always suggestive of trachoma, whereas follicles which spare the upper tarsal conjunctiva but involve the fornices and the lower fornix predominantly always suggest folliculosis or follicular conjunctivitis. The follicles of trachoma are soft, gelatinous and easily expressed, while the follicles of folliculosis and follicular conjunctivitis are hard and expressible only with the greatest difficulty. There is no essential difference between the follicles of folliculosis and of follicular conjunctivitis, but in the latter they are much less prominent, since they may be partially or completely buried in the coexisting subepithelial infiltration.

Granulomatous Changes.—Apart from the small granulomas which may result from buried foreign bodies or ruptured chalazia, conjunctival granulomas are generally associated with oculoglandular conjunctivitis, of which conjunctival tuberculosis and oculoglandular tularemia are the outstanding examples. Both of these diseases have granulomatous conjunctival nodules which may ulcerate. In tularemia the nodules are usually rather numerous and are accompanied by considerable inflammatory reaction, in most instances severer than that found in tuberculosis. In leptotrichosis conjunctivae the occurrence of small, whitish or grayish necrotic foci [7] without gross ulceration is a characteristic and almost pathognomonic feature. These foci must be distinguished from conjunctival concretions which may have been present prior to the onset of the particular inflammation.

Single large granulomas without diffuse conjunctival inflammation should be considered as suggestive of rhinosporidiosis [8] and should be subjected to microscopic examination. This disease, though admittedly rare, has been reported from several parts of the country.

Conjunctival Ulcers.—As mentioned above, conjunctival ulceration is characteristic of conjunctival tuberculosis and oculoglandular tularemia but it may also be seen rarely in other conditions, such as chancre of the

4. deRötth, A.: Common Wart as an Etiologic Factor in Certain Cases of Conjunctivitis and Keratitis, Arch. Ophth. **21**: 409 (March) 1939.

5. Offret, G., and Duperrat, R.: Les manifestations oculaires du molluscum contagiosum, Arch. d'opht. **2**: 993, 1938. Quill, T. H.: Molluscum Contagiosum of Eyelid and Cornea: Report of a Case, Proc. Staff Meet., Mayo Clin. **15**: 139, 1940.

6. Bollack, J.; Basch, G., and Desvignes, P.: Infection conjonctivale avec adénopathie due au virus de la maladie de Nicolas-Favre, Bull. Soc. d'opht. de Paris, 1936, p. 409. Curth, W.; Curth, H. O., and Sanders, M.: Chronic Conjunctivitis Due to the Virus of Venereal Lymphogranuloma, J. A. M. A. **115**: 445 (Aug. 10) 1940.

7. Verhoeff, F. H.: Observations on Parinaud's Conjunctivitis, Am. J. Ophth. **1**: 705, 1918.

8. Elles, N. B.: Rhinosporidiosis Seeberi Infection in the Eye, Tr. Am. Ophth. Soc. **38**: 369, 1940.

conjunctiva and acute pemphigus. The ulcers of acute pemphigus are readily distinguished from other ulcers by their shallow character and transient nature.

Formation of Membrane and Pseudomembrane.—For the purposes of this discussion, the term pseudomembrane refers to fibrin coagulum located on the epithelium but readily removable without damage to it. In a true membrane, on the other hand, coagulation of the fibrinous exudate has also occurred in the epithelium and in the subepithelial tissues so that removal of the membrane leaves a bleeding, rough surface. Conjunctival pseudomembranes are of two types, the fine, transient type and the thick, relatively permanent type. The outstanding example of the first type is the extremely fine, transparent membrane which is characteristic of vernal catarrh in the active phase and indeed almost pathognomonic of the disease. Fine, transient pseudomembranes, generally less transparent than those seen in vernal catarrh, may occur occasionally in hyperacute conjunctivitis of several types, including gonococcic conjunctivitis and even epidemic keratoconjunctivitis.

Thick, opaque, more lasting pseudomembranes immediately suggest diphtheria of the conjunctiva, and treatment with diphtheria antitoxin may be begun on the basis of their appearance alone. Similar thick pseudomembranes do occur, however, in beta hemolytic streptococcic infections of the conjunctiva and particularly in the endogenous variety, in which they may persist over a period of many years. It should be recognized, moreover, that they sometimes occur in erythema multiforme and occasionally in ocular pemphigus. Examination of the nose and throat should never be neglected, therefore, when conjunctival membranes or pseudomembranes are present, since the finding of stomatitis points to the diagnosis of erythema multiforme or pemphigus, whereas nasal or nasopharyngeal membranes indicate diphtheria or beta hemolytic streptococcic infection. It should also be remembered that formation of pseudomembrane or membrane may follow extensive radiation of the eye.

Cicatrization.—Conjunctival scars are of great diagnostic value. Omitting for the purposes of this discussion the scars which follow injury, operation for chalazia or burns, only three diseases need be considered in differential diagnosis; namely, trachoma, pemphigus and diphtheria. The scars of trachoma involve the upper tarsal conjunctiva predominantly and those of ocular pemphigus the lower tarsal conjunctiva and fornix predominantly. In ocular pemphigus there may be obliteration of the entire lower fornix. This never occurs in trachoma, and shrinkage of the lower fornix is always less than that of the upper. It should be remembered that, although trachoma sometimes heals with mild scarring, there is always sufficient cicatrization to be recognized in careful examination with the slit lamp.

The scarring of diphtheria is generally diffuse, and there is usually not much shrinkage of the fornices.

It should also be remembered that radiation often causes formation of scars and that, since application of radium is a common procedure in vernal catarrh, radium scars are not uncommonly seen.

The Phlyctenule.—The conjunctival phlyctenule is pathognomonic of phlyctenular conjunctivitis and is believed to be an allergic reaction to a bacterial antigen, most commonly tuberculoprotein. When typical the phlyctenule cannot be confused with any other structure, but occasionally differentiation must be made from the limbal excrescences of vernal catarrh, from localized episcleritis and from inflammation involving the pinguecula. Inflammation involving this latter structure is by no means uncommon and probably forms one special type of episcleritis. Unlike conjunctival phlyctenules, corneal phlyctenules lack diagnostic value. They are difficult to distinguish from catarrhal infiltrates, and diagnosis must in fact be based on the simultaneous occurrence of conjunctival phlyctenules.

Conjunctival Concretions.—Concretions in the conjunctiva as distinguished from infarcts of the meibomian glands always indicate the occurrence of past or present chronic conjunctivitis. Their diagnostic value is slight, but when they occur in large numbers they can be considered suggestive of old trachoma.

Bitôt's Spots.[9]—These areas of keratinization are typically triangular in shape and lie at the temporal limbus with the base to the limbus. As seen on examination with the slit lamp, they have a characteristic appearance, exhibiting folds concentric with the limbus and dry, greasy, opaque surfaces. They usually indicate a vitamin A deficiency, although in tropical countries their occurrence has been reported in the absence of such deficiency.[10] Bitôt's spots may occur elsewhere than at the limbus, but the first lesion of vitamin A deficiency is almost always in this location. They are generally bilateral but occasionally affect only one side. There is almost always an associated disturbance of the corneal epithelium which gives it a punctate opacification readily recognized on examination with the slit lamp. Although not grossly visible, this opacification is sufficient to dull the normal corneal luster.

LIMBAL AND CORNEAL LESIONS OF DIAGNOSTIC IMPORTANCE

Limbal Follicles.—Limbal follicles involving the upper limbal region predominantly must be considered pathognomonic of active trachoma. Their appearance is absolutely characteristic, and they cannot be confused with such other limbal hypertrophy as occurs in the limbal variety of vernal catarrh. When the limbal follicles absorb they leave behind cicatricial remains known as Herbert's pits.[11] These pits appear as clear areas in the serrated limbal margin and are best demonstrated by retroillumination. Like the limbal follicles their demonstration is an unequivocal indication of preexisting trachoma. Unfortunately they occur in not more than 50 per cent of the cases of trachoma.

Limbal Hypertrophy of Vernal Catarrh.—The papillary excrescences of vernal catarrh involve the temporal and nasal areas of the limbus predominantly but occasionally form a ring around the entire cornea. This limbal hypertrophy when typical is pathognomonic of the limbal variety of vernal catarrh, but in cases of mild disease it is sometimes confused with the limbal hypertrophy occurring in phlyctenular conjunctivitis or even

9. Bitôt, P.: Gaz. méd. **1**: 435, 1863; cited by Duke-Elder, S.: Text-Book of Ophthalmology, St. Louis, C. V. Mosby Company, 1938, p. 1755. Berliner, M. L.: Regarding the Early Detection of Avitaminosis A by Gross or Microscopic Examination of the Conjunctiva, Am. J. Ophth. **25**: 302, 1942.

10. Metivier, V. M.: Bitôt's Spots in Trinidad, Am. J. Ophth. **24**: 1029, 1941.

11. Busacca, A.: Die trachomatöse avasculare Keratitis, Klin. Monatsbl. f. Augenh. **72**: 243, 1924. Herbert, H.: Corneal Pitting, Brit. J. Ophth. **19**: 261, 1935.

with that of episcleritis. When chalky concretions, known as Trantas' spots,[12] occur in the limbal hypertrophy, however, it may be considered diagnostic of vernal catarrh.

Extension of Limbal Vessels.—Extension of limbal capillary loops into the cornea is characteristic of incipient trachoma and may occur in cases of severe trachoma as early as one week after onset. This extension in trachoma always occurs first at the upper part of the limbus and is always much more prominent there than at the lower part. When combined with punctate epithelial staining and subepithelial infiltrates, more pronounced in the upper half of the cornea than in the lower, the diagnosis of trachoma is almost mandatory.

Extension of limbal capillary loops may of course occur in other conditions besides trachoma, such as phlyctenulosis, riboflavin deficiency,[13] marginal infiltrates, herpes corneae, and even occasionally in vernal catarrh, but the vascularization is usually irregular in these conditions and is not localized predominantly in the superior part of the limbus, as in trachoma. These conditions also lack the upper corneal infiltration and punctate epithelial staining which is characteristic of trachoma. It should be remembered that in older persons arcus senilis is usually accompanied by penetration of limbal capillary loops beyond the normal boundary of the limbus.

A wide limbus is sometimes confused with corneal vascularization, but if particular attention is paid to the corneal boundary of the limbus no such mistake will be made. The corneal border of the limbus, best seen by direct focal illumination, appears as the slightly serrated border of the limbal opacity. Gross extension of capillary loops beyond this line can be considered pathologic.

Marginal Infiltrates and Ulcerations.—Isolated marginal corneal infiltrates, especially when accompanied by punctate epithelial staining, are almost diagnostic of staphylococcic conjunctivitis,[14] although they may in rare instances also be seen in diplobacillary, Koch-Weeks, and streptococcic conjunctivitis. Scattered subepithelial infiltrates involving the upper half of the cornea predominantly always suggest trachoma. The occurrence of grossly visible round subepithelial infiltrates tending to involve the pupillary area is almost pathognomonic of epidemic keratoconjunctivitis.[15] Marginal infiltrates of an extensive nature and tending to form rings concentric with the limbus always suggest endogenous infections. Such ring infiltrates are seen in endogenous conjunctivitis of various sorts and with special frequency in the keratoconjunctivitis which occasionally accompanies bacillary dysentery.

Punctate Epithelial Staining.—The diagnostic value of punctate epithelial staining is in general not sufficiently realized. It is perhaps most frequently seen in staphylococcic conjunctivitis, in which it tends to involve the lower half of the cornea predominantly. In this condition the punctate staining is fine and the points never become confluent. Similar punctate staining in conjunction with formation of filament and irregular confluent lesions immediately suggests keratoconjunctivitis sicca;[16] the simultaneous occurrence of mucus secretion sticking to the corneal surface gives a picture pathognomonic of the disease. The punctate staining of trachoma is exactly like that of staphylococcic conjunctivitis except that it always involves the upper half of the cornea predominantly. The punctate staining of superficial punctate keratitis differs strikingly from the previously described types in that only a limited number of staining areas occur and that each of these is formed by a group of punctate staining points which can readily be resolved by high power examination. Punctate staining similar to that occurring in staphylococcic conjunctivitis is occasionally observed in eyes which have received radiation.

12. Trantas, A.: Sur le catarrhe printanier, Arch. d'opht. **30**: 593, 1910.
13. Sydenstricker, V. P.; Sebrell, W. H.; Cleckley, H. M., and Kruse, H. D.: Ocular Manifestations of Ariboflavinosis, J. A. M. A. **114**: 2437 (June 22) 1940.
14. Allen, J. H.: Staphylococcic Ocular Inflammation, Journal-Lancet **62**: 207, 1942.
15. Braley, A. E.: Epidemic Keratoconjunctivitis, Arch. Ophth. **33**: 47 (Jan.) 1945.
16. Sjögren, H.: General Symptomatology and Etiology of Keratoconjunctivitis Sicca. Acta ophth. **13**: 1, 1935.

COMMENT

Certain of the previously discussed clinical findings are individually pathognomonic of a number of etiologic types of conjunctivitis. Thus the limbal follicles or their cicatricial remains (Herbert's pits) are in themselves unequivocally diagnostic of trachoma. Of similar importance are the chalky concretions (Trantas' spots) in the limbal excrescences of vernal catarrh, and the pavement block–like papillae on the upper tarsal conjunctiva in palpebral vernal catarrh.

Most conjunctival changes, however, are not in themselves individually pathognomonic but are only suggestive of certain causal types. Examples of such nonpathognomonic changes include punctate epithelial staining of the cornea, the conjunctival follicle and extension of limbal vessels into the cornea. But when several such changes occur simultaneously, they may together point to a specific cause. Thus the extension of limbal vessels, when combined with punctate epithelial staining, subepithelial corneal infiltrates and upper tarsal follicles, gives a composite picture diagnostic of trachoma. In the same way punctate epithelial staining of the cornea, in itself not pathognomonic, is clearly indicative of staphylococcic infection when combined with chronic conjunctival inflammation and lesions of the lid margins.

SUMMARY AND CONCLUSIONS

There are a number of clinical signs, both gross and biomicroscopic, which are of diagnostic importance in conjunctivitis. Changes in the regional lymph nodes, the lid margins, the limbus and the cornea are of almost equal diagnostic importance with those occurring in the conjunctiva itself. By clinical examination alone it is possible to identify many of the various etiologic types of conjunctivitis. When these clinical observations are correlated with cytologic and bacteriologic studies, the cause can be determined in a high percentage of cases.

ABSTRACT OF DISCUSSION

DR. JAMES H. ALLEN, Iowa City: Dr. Thygeson has provided a logical and practical basis for beginning the differential diagnosis of inflammatory and infectious diseases of the eye. Under Dr. Thygeson's influence my colleagues and I have used this method not only for diagnosis but for teaching our residents. We find that it is highly stimulating to the residents and that it simplifies teaching. It is unfortunate that time did not permit Dr. Thygeson to extend the differential diagnosis which he uses to its logical completion. The beginning is the differentiation on the basis of a single manifestation—preauricular adenopathy, for instance. The extension, then, is the division into and differentiation of follicular conjunctivitis, nodular conjunctivitis, the ulcerative variety, and so on.

DR. TRYGVE GUNDERSEN, Boston: Conjunctivitis alone gives rise to few symptoms except those associated with swelling of the conjunctiva, interference with lacrimal drainage and increased secretion of mucus, pus and tears. These in order cause a sense of fulness around the eyes, some tearing and, lastly, agglutination of the lids, especially on awakening. When the cornea becomes involved, new symptoms appear. Punctate keratitis, such as caused by Staphylococcus toxin, causes pain—occasionally a definite deep-seated ache in the globe. Since it is not uncommon for the superficial punctate lesions to heal during the day with the natural cleansing of the conjunctiva and the washing away of the bacterial toxins, the symptoms also disappear. Therefore, a symptom of diagnostic importance is ocular pain, most severe in the early morning and lessening during the day. In contrast to ocular pain which is most severe on arising and less severe as the day goes on, there are painful sensations which behave in a reverse manner. For instance, in keratoconjunctivitis sicca the healing of the corneal defects occurs during the night, when the lids are closed and the cornea is kept normally moist and lubricated. Therefore the painful sensations of heat and dryness of which these patients complain increase during the day. This is particularly true on hot, dry and windy days. Itching is a symptom which is most helpful for the ophthalmologist to elicit and should never be overlooked when offered spontaneously by the patient. To me it invariably and exclusively indicates allergy. The victim of hay fever knows this. No patient with active vernal catarrh fails to give itching as his most troublesome complaint. It exists even in conjunctivitis due to the prolonged use of atropine and less frequently of physostigmine salicylate and pilocarpine. The cause of the itching has never been clearly defined, but I believe that it may be due to—or at least it is always associated with—the corneal stippling which Dr. Thygeson has described as fine punctate staining. This is an important type of corneal change to recognize as an entity. Not all the stippled points do stain with fluorescein sodium. At the Massachusetts Eye and Ear Infirmary we have accepted Vogt's term, "keratitis epithelialis disseminata," and until a better term is offered, I suggest that this descriptive one be used. It is common. It always exists on the corneas of patients who have active vernal catarrh, and frequently on the corneas of patients with other allergic conditions of the eyes. I offer it as possibly the direct cause of ocular itching.

DR. I. S. TASSMAN, Philadelphia: The oculoglandular syndrome of Parinaud was referred to as leptotrichosis, which is what we always understood it to be. I wonder if Dr. Thygeson could add anything to clarify the relationship of the virus of lymphogranuloma venereum to the causation of Parinaud's oculoglandular syndrome.

DR. PHILLIPS THYGESON, San Jose, Calif.: I was particularly interested to have Dr. Gundersen discuss the diagnostic value of the various subjective symptoms of conjunctivitis. Dr. Allen brought out the important interrelationship of the various signs and symptoms of conjunctivitis and showed that whereas one sign alone may not be diagnostic, the combination of two or more signs may be so. This is well brought out in oculoglandular conjunctivitis, in which the presence of a visibly swollen preauricular node is not in itself diagnostic but, when combined with small areas of necrosis in the conjunctiva immediately points to the etiologic entity of leptothricosis conjunctivae (Verhoeff). There seem to be two schools of thought on the oculoglandular syndrome of Parinaud. Dr. Verhoeff, I believe, is of the opinion that there is only one Parinaud conjunctivitis, which is the leptothrichosis conjunctivae, in which he discovered the causal agent. The late Dr. Sanford Gifford strongly urged the use of the term "oculoglandular syndrome of Parinaud" to include all the various etiologic types of conjunctivitis characterized by the occurrence of large swollen preauricular glands. In this syndrome would be included such etiologic entities as tuberculosis of the conjunctiva, lymphogranuloma venereum conjunctivitis, syphilis of the conjunctiva, etc. There are ten or more entities which would be included in this group. I personally prefer the term "oculoglandular syndrome of Parinaud" for use in describing a conjunctivitis of this type, at least until the causation has been determined, which in many cases will be found difficult or impossible.

SYMPATHECTOMY FOR PERIPHERAL VASCULAR SCLEROSIS

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Peripheral vascular sclerosis is the overwhelming single cause of deficient arterial circulation in the lower extremities. Four grades of this disease can be recognized, and it was pointed out in a previous study [1] that any therapeutic measure must be evaluated on the basis of these four groups and their response toward the method under scrutiny.

In this study lumbar sympathectomy has been employed alone or in combination with various types of amputation in rigidly selected patients. Our purpose here is to discuss the selection of cases, the surgical approach and the results together with an interpretation of the observations. The previous literature on the subject has been summarized elsewhere.[2]

MATERIAL STUDIED

The series consists of 57 carefully selected cases, and we shall group them according to the severity of the disease as outlined in a previous paper.[1]

GROUP 1.—These patients have diminished or absent pulsations of the foot or lower leg. The skin is warm, and the color of the feet is normal. They can walk a distance of 2 to 6 blocks without pain. Comparatively few patients are seen in this series, since their symptoms increase insidiously and seldom send them to seek medical advice. In hypertensive persons or patients suffering from angina pectoris the symptoms of claudication are masked, overshadowed or prevented by the appearance of ischemic syndromes elsewhere.

Lumbar sympathectomy has been performed in 18 such patients. The improvement in walking ability in some has been dramatic. The average increase in ability to walk without claudication has been from 3 blocks to 9 blocks; however, a 51 year old mail carrier increased his walking ability to an unlimited distance and a 38 year old amusement park operator could walk for three hours continuously without pain.[2] These persons have been restored to their full earning power. Another group just about doubled their walking ability, and in 2 patients there has been no improvement in claudication, although the foot and lower leg has become warm and dry. This immediately raises the question whether claudication can be relieved at all by sympathectomy, a question to be taken up later.

GROUP 2.—The feet of the patients in this group are pulseless, and their ability to walk without pain is reduced to below 2 blocks. However, trophic changes may still be absent although the feet are cold and dry and a single toe is often cyanotic. A cold and moist foot, incidentally, always gives a better prognosis because such patients exhibit a heightened sympathetic tone, the release of which warms up their skin. In

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1. de Takats, G.; Beck, W. C., and Roth, E.: The Neuro-Circulatory Clinic: A Summary of Its Activities; I. Peripheral Vascular Disease, Ann. Int. Med. **13**: 957, 1939.

2. de Takats, G.; Fowler, E. F.; Jordan, P., and Risley, T. C.: Sympathectomy in the Treatment of Peripheral Vascular Sclerosis, J. A. M. A. **131**: 495 (June 8) 1946.

such patients walking ability remains unimproved. However, the cyanosis may disappear and a pregangrenous leg has been converted into a warm, dry extremity which remains painless on definitely limited walking. Improvement in walking ability within six to twelve months aided by a suitably set rhythmic constrictor can occur. The nonsympathectomized leg may deteriorate faster and in 2 instances has come to amputation, whereas the sympathectomized leg maintained its viability. Of 22 patients in this series only 1 required an amputation.

GROUP 3.—There is pain at rest and intractable ischemic neuritis in this group. Walking may be less painful or even offer relief when rest in bed is difficult. When the foot is ice cold and when arteriolar obstruction and capillary paralysis are obvious from the pronounced dependent rubor sympathectomy is of no use and may precipitate gangrene. In one form, however, in which the pulseless foot is hot and osteoporotic and tolerates even mild heat but poorly, a causalgic state exists,[3] and after a satisfactory response to sympathetic block a sympathectomy has averted amputation. This is a small but definite group of 6 patients, 3 of whom were diabetic and 2 alcoholic, an indication that their ischemic neuritis was superimposed on a neuropathy of other origin.

GROUP 4.—These patients exhibit ulceration and gangrene of the digits or parts of the foot. The lesion is dry and not too painful. There is no evidence of infection. The popliteal pulse is absent, and possibly the femoral is also absent. Supracondylar amputation used to be the surgical procedure of choice in these patients at the level of positive histamine flares. However, a sympathetic block may so shift the level of circulatory efficiency that a lower leg or a midmetatarsal amputation can be tolerated. This is an important group, since patients can be discharged with a healed stump below the knee or at metatarsal levels who would never tolerate such an amputation without sympathectomy. There are, of course, certain precautions to be taken in performing these amputations. The surgical operations are performed by avoiding flaps, by never suturing anything else but skin, by avoiding the slightest tension and by draining through a dependent stab wound. Traction is never used, nor is snug elastic compression advisable, but a loose stump dressing is applied and left alone for twelve to fourteen days. We mention these details because the traumatic amputations in the Armed Forces required an entirely different type of management, which is not applicable to this group. Eleven patients are in this series. Their number can be greatly increased but is limited by age, general debility or general cardiovascular damage.

SUMMARY OF RESULTS

A tabulation of the four groups reveals the following: In the first group walking ability was not improved in 2 of 18 patients; in the second group pain was unrelieved and gangrene developed in 1 of 22 patients; in the third group pain at rest was relieved and amputation averted in all 6 patients. In the fourth group below the knee or midmetatarsal amputations healed in 10 of 11 patients. Of the total 57 patients, then, 53 benefited considerably whereas 4 failed to benefit from the surgical operation. Considering the degree of vascular involvement, this is an encouraging performance.

3. de Takats, G.: Causalgic States in Peace and War, J. A. M. A. **128**: 699 (July 7) 1945

THE TECHNIC OF LUMBAR SYMPATHECTOMY

Recently I have described our method of muscle-splitting, extraperitoneal approach in the surgical clinics.[4] In these sclerotic, handicapped, elderly patients this is the simplest and least injurious surgical operation, performed under spinal anesthesia in from twenty-five to forty-five minutes, with early ambulation and discharge from the hospital after a week to ten days. When bilateral sympathectomy is needed, the two stages of the operation are performed a week to ten days apart. The transperitoneal approach is used only in certain infrequent instances; when it is important to remove the first ganglion because of an iliofemoral occlusion the lumbar approach may be used, which is easier on the surgeon but more difficult for the patient.

There has been no mortality in this group and none in several hundred lumbar sympathectomies performed for other causes. One severe infection which developed in a wound had to be drained; the patient made a good recovery. The infection was traced to a persistent streptococcus carrier among the instrument nurses.

COMMENT

As Hueper[5] pointed out, a fatalistic attitude prevails toward the prevention and treatment of arteriosclerosis, since the theory of senescence still obtains in the minds of most physicians. In his review Hueper has listed a multiplicity of factors capable of producing a similar tissue response in the arterial tree. From the surgeon's point of view peripheral arteriosclerosis is often encountered as a segmental, patchy disease responsible for ischemia, which need affect other organs only slightly. The first object of study, then, is to examine the extent of vascular involvement in vital organs. This is accomplished by a study of eyegrounds, the electrocardiogram, a 2 meter chest film and a concentration-dilution test. Cerebral, cardiac or renal involvement of severity obviously rules out any surgical attempt to improve circulation of one or two lower extremities. Certainly a patient is not a candidate for sympathectomy if he has had a stroke or a myocardial infarct or if he exhibits decided renal impairment.

Three factors may be considered without argument as being important in the causation and progression of arteriosclerosis, namely: diabetes, lipemia and hypertension. None of these have to be present, but when they are suitable measures must be undertaken to control them. Diabetes is not a contraindication to lumbar sympathectomy; in fact, some of the severe burning paresthesias have been seen to be relieved after this surgical operation (group 3 of our series). But of course its preoperative and postoperative control is obviously necessary. Lipemia, with or without hyperglycemia, has been relatively frequently encountered; the literature on attempts to control it is vast and need not concern us here.[6]

The point should be made, however, that the reduction of blood cholesterol levels of over 250 mg. per hundred cubic centimeters prevents further atheromatous deposits and is frequently possible with high protein, low fat diets, thyroid, lipocaic or methionine.

The factor of vascular tension in the production of vascular sclerosis has been especially stressed by

4. de Takats, G.: The Technic of Lumbar Sympathectomy, S. Clin. North America **26**: 56, 1946.

5. Hueper, W. C.: Arteriosclerosis: A General Review, Arch. Path. **38**: 162 (Sept.); 245 (Oct.); 350 (Nov.) 1944; **39**: 51 (Jan.); 117 (Feb.); 187 (March) 1945.

6. Page, I. H.: Arteriosclerosis and Lipid Metabolism, in Moore, R. A.: Ageing and Degenerative Diseases, in Biological Symposia, edited by J. Cattell, Lancaster, Pa., Jacques Cattell Press, 1945, vol. 11.

Moschcowitz.[7] In our study of hypertensive patients, in which over 250 patients have been subjected to dorsolumbar sympathectomy, the involvement of the peripheral vascular tree obviously runs in fair parallel with organic lesions elsewhere in the body, particularly with those of the coronary arteries. We wish to stress the hitherto neglected point, however, that even the normotensive patient carries a higher peripheral resistance in the lower extremities when he sits or stands. This postural hypertension in the lower extremities favors the deposition of subintimal atheromatous plaques, which are notoriously rare in the upper extremities. Certainly this is true in the cholesterin-fed upright rabbit.[8]

The control of postural hypertension in the erect human being by means of sympathectomy is of great importance in the prevention of atheromatous deposits. The accompanying chart indicates that the great shift in peripheral resistance which always occurs when man stands up can be mitigated if not completely abolished by sympathectomy. This is true both in the normotensive and in the hypertensive person. The pulse waves become smaller, the peripheral resistance declines and the mechanical strain on the vascular tree of the standing position is dampened. The drop in skin temperature, which is most pronounced in the feet when the individual is erect, is also abolished.

That thermal stimuli, such as a cold spray or a cool draft are also ineffective in the sympathectomized limb is too well known to receive much comment. That it is a potent factor in the symptomatology of vascular disease is known to those patients who seek a subtropical climate for the relief of their symptoms. While the sympathectomized limb may cool off on direct exposure to cold, it regains its previous temperature much faster when its vasomotor supply is cut.[2]

A third factor affecting the flow of blood is the central nervous factor. Emotional stimuli, anxiety, hostility and mental arithmetic may cause vasoconstriction or vasodilatation, usually the former. Any of these effects is abolished by sympathectomy. The sympathectomized limb of the patient suffering from peripheral vascular sclerosis is freed from postural, reflex, thermal and emotional vasoconstriction. The time-honored advantages of rest in bed in the horizontal position and of even warm climate or mild heat and freedom from worry, which exert a beneficial influence on peripheral circulation, are all suddenly accomplished by lumbar sympathectomy.

The utilization of an intermittent venocapillary stretch, which is a widespread and extremely useful method of treating peripheral vascular disease, is greatly facilitated by sympathetic denervation, since constrictor reflexes originating from this procedure are abolished. The five points in favor of lumbar sympathectomy on the lower extremity may then be briefly summarized as follows:

1. The extremity warms up faster and cools more slowly on direct exposure. Reflex effects of heat and cold are ineffective.

2. The high vasoconstrictor tonus in the sitting or standing position is abolished.

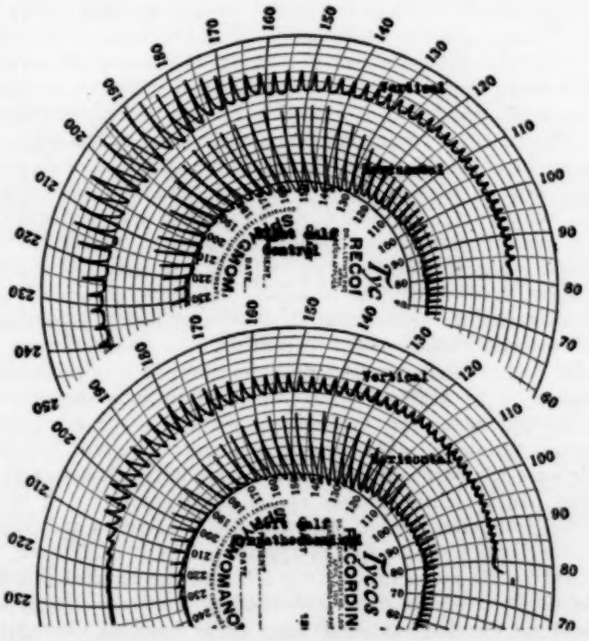
3. Vascular exercises such as intermittent venous hyperemia are more effective.

4. Any cross stimulation between sympathetic and demyelinated sensory fibers is abolished.

5. During effort the sympathectomized extremity will not cool off; on the contrary, it may become warmer.

The 57 patients whose cases are reported herein are of course just a drop in the bucket to the staggering number of middle-aged men for whom such surgical intervention might become necessary. It seems that if claudication becomes a handicap or an alarming symptom to the patient he has little of the physician's therapeutic armamentarium from which to choose. The continuous use of intermittent venous hyperemia in the home[9] for a period of many months and years has definite value but is lengthy and time-consuming, and the surgical operation has accomplished in one week what the constrictor may do in many months.

Prolonged sojourn in subtropical climates is known to be helpful, but the cost is prohibitive for many. Rest in bed for many weeks decreases vasomotor tone and is often the only possible course before amputation. As



Oscillometric graphs from the right and left calves of a patient whose left lower extremity has undergone sympathectomy. Note that on the non-sympathectomized extremity the diastolic pressure rose from 100 to 160 mm. of mercury when the patient stood up. On the sympathectomized side there is no increase in the height of the pulse waves at higher levels and peripheral resistance did not change in the vertical as compared with the horizontal position. This graph indicates the protective action of lumbar sympathectomy from the postural hypertension of the lower extremity.

pointed out elsewhere,[2] the sympathectomized limb with its vasomotor palsy offers the advantages of horizontal rest in bed, warm climate and freedom from worry, as far as its effect on the extremity is concerned.

Frequently the cramping on walking gives way to fatigue in the calf or the numbness in the foot and toes becomes prominent when claudication improves. This brings into focus the much debated question whether vasomotor paralysis really affects the circulation of the muscles and, indirectly, their metabolism. Disuse of the muscle itself leads to atrophy and often muscle fatigue, which is not muscle cramp, is responsible for the residual symptoms. All this needs to be explained to the patient, who expects complete relief and may be disappointed.

7. Moschcowitz, E.: Vascular Sclerosis with Special Reference to Arteriosclerosis, London, Oxford University Press, 1942.

8. Wilens, S. L.: The Effect of Postural Hypertension on the Development of Atheromatosis in Rabbits Fed Cholesterol, Am. J. Path. **19**: 293, 1943.

9. de Takats, G.; Hick, F. A., and Coulter, J. S.: Intermittent Venous Hyperemia, J. A. M. A. **108**: 1951 (June 5) 1937.

SUMMARY

A group of 57 patients with vascular sclerosis of the lower extremities has been studied. If after preliminary block of the lumbar sympathetics the temperature of the digits rose, walking ability improved and generalized vascular involvement was not extensive a lumbar sympathectomy was performed. In one group of patients this operation resulted in a dramatic increase in walking ability; in a second group amputation was averted; in a third group intractable neuritic pain of the causalgic type was benefited, and in a fourth group amputation could be performed at a lower level. In rigidly selected cases of peripheral arteriosclerosis, lumbar sympathectomy has proved to be a method of great value.

ABSTRACT OF DISCUSSION

Dr. Felix Pearl, San Francisco: In the early 1930's, the use of sympathectomy in the treatment of arterial insufficiency of the extremities from degenerative arterial disease was considered almost a surgical crime. Today, we have heard Dr. de Takats report a whole series of such cases. In the clinic at Mt. Zion Hospital we were long ago impressed with the idea that this operation was nonspecific in character, producing increased circulation irrespective of the underlying process. With satisfactory vasoconstriction there is no reason why sympathectomy should not be effective in the treatment of degenerative arterial disease. We have performed this operation on 50 extremities. In almost all instances it was performed by the muscle-splitting extraperitoneal approach, which has been found eminently satisfactory. All but 3 patients had excellent responses to vasomotor paralysis and were considered good subjects for the operation. Of those that had a good element of vasoconstriction, not 1 patient had an amputation of any kind. In a similar period, approximately 75 low thigh amputations were performed for degenerative arterial disease in nonsympathectomized extremities. In about one third of the sympathectomized extremities pulses were improved in volume or were felt postoperatively where none were felt before operation. In a similar number of patients there was well defined relief from claudication. In many the claudication and postural color changes subsided or disappeared. The vasodilatation indicated by the preoperative study followed the surgical procedure in nearly every instance and persisted for extended periods; in 1 case as long as eight years. Our cases of ulceration or gangrene have had insufficient vasoconstriction to warrant surgical intervention. Otherwise, our results have closely paralleled those of Dr. de Takats. Early in our experience we discarded paravertebral block because of the inability always objectively to determine the successful block and its unreliability in estimating relief from pain. We replaced it with block of peripheral mixed nerves, the completeness of which was evidenced by the anesthesia produced; in over 400 such blocks the method has demonstrated its value. Patients who have already lost one leg are urged to have their remaining extremity sympathectomized if signs of degeneration are present even though it is symptomless. Sympathectomy in degenerative arterial disease is performed to increase the circulation for preservation of the extremity, to relieve symptoms, to stop the pathologic process. Our statistics show that the surgical operation preserves the extremity; but the patient should be warned in advance that his claudication may not be relieved. Heuper's work suggests that sympathectomy also favorably affects the course of vascular degeneration of the lower extremity. Dr. de Takats has been much too conservative in estimating some of his results. For example, in group 1 he lists the results in 2 patients as failures because their claudication was not improved. Yet their extremities showed postoperative vasodilation. I do not consider these failures because they have probably protected the patients against subsequent ulceration or gangrene.

Dr. Alton Ochsner, New Orleans: After this presentation most of us will want to have a sympathetic block before starting our trek through the exhibits or walking up some of the San Francisco hills. The section is indebted to Dr. de Takats for calling attention to this important therapeutic aid. As Dr. Pearl has said, we have been in the habit of thinking of vasodilatation as being limited and applicable only to those cases in which there has been little organic disease. From our experience we are convinced that in even the degenerative cases a vicious circle is set up; that this is less than it is in the vasospastic organic lesions, but that even in these there is a vicious circle which is set up, with the organic obliteration tending to produce vasospasm. We are advocates, as Dr. de Takats is, of the value of the sympathetic block as determined with procaine hydrochloride. We feel that although objective manifestations, such as those obtained by means of the Burch plethysmograph, or oscillograph, are of value; however, the functional result is even more important. If the patient can walk better and farther after the block he is likely to be benefited by sympathectomy. We have not had the difficulty that Dr. Pearl apparently has had in getting a satisfactory block because we use four needles at the first, second, third and fourth lumbar vertebral levels. It is of importance, too, in using sympathectomy, as Dr. de Takats has emphasized, to consider the conservation of extremities. At the present time, in our group, under the direction of Dr. Champ Lyons representing the surgical service and Dr. Guy Caldwell of the orthopedic service we have instituted a program which is, as far as we are concerned at least, very conservative. Whereas we used to do amputations in many of these patients who were having difficulty with their extremities, now by means of sympathetic ligation in a preparatory way, much less radical procedures can be undertaken with the preservation of a good deal of the extremity, which was not possible before the use of sympathetic surgical procedures.

Dr. Robert Katz, New Orleans: I should like to call attention to a very important part of Dr. de Takat's paper, that is, the economic importance of the relief of pain and symptoms. Vascular sclerosis has been perhaps the most terrifying disease of the aging population here in America. Dr. Alton Ochsner and his school, Dr. de Takats and his school and other men throughout the nation have demonstrated what has been done for the relief of acute pain by the simple procedure of sympathectomy. However, there are instances in Dr. de Takat's classification where sympathectomy fails. In this particular group of patients, there is a new nonsurgical method based on a therapeutic drug of one hundred years of experience, namely, U. S. P. ether, used under the name of diethyl oxide because of the adverse psychologic effect produced in patients by mention of the term "ether." I have recorded through the Touro Infirmary of New Orleans and the U. S. Marine Hospital, as consultant, 100 already published cases of peripheral disease, mainly vascular sclerosis treated successfully with diethyl ether given intravenously for a course of twenty-four treatments. In this work I have had the help and the encouragement of Dr. Rudolph Matas. The results appear to be helpful in those cases where sympathectomy is not of benefit or is not indicated. This method has been used with a success of approximately 85 per cent, including the bad results of the initial experimental stage. Sympathectomy in selected cases offers a quicker relief of pain; sympathectomy offers a quicker way to get the man back to economic stability. However, we still have another nonsurgical therapeutic tool, intravenous diethyl ether. It is simple. The safety record is unblemished; no patients have died, no patients have been put into an anesthetic sleep. It is absolutely safe. I hope that the profession, the surgeons especially, will consider this method. We have a new tool, a solution of 2½ per cent diethyl oxide (diethyl ether) administered intravenously in 1,000 cc. isotonic solution of sodium chloride, to implement already established collateral circulation. Perhaps a better one may come along later, but at least a beginning has been made.

DR. GEZA DE TAKATS, Chicago: I am greatly indebted to the discussants and would like to reiterate that it was Dr. Pearl who first drew our attention to the so-called angiospastic claudication, that is, to the type of people who develop angiospasm while walking. It is also his surgical approach of anterolateral muscle-splitting extraperitoneal incision, which can be done in twenty-five to thirty-five minutes under spinal anesthesia, that we have been using. In this series and in another series of sympathectomies performed for other types of peripheral vascular disease, and which now goes into several hundreds, we have as yet had no mortality. Dr. Ochsner has already answered our reaction to the paravertebral block versus peripheral block, in trying to estimate the amount of vasomotor tonus. When one performs a peripheral nerve block, of course one develops a sensory anesthesia and thus does not get as much information about the expected pain-relief resulting from sympathectomy. It is also true, however, that one who is inexperienced in paravertebral block may so flood the lumbosacral plexus that sensory anesthesia results, or one can even get a spinal anesthesia. It is very important, as Dr. Ochsner has already stated, to learn the technic of this simple and useful procedure of paravertebral sympathetic block. Unquestionably there are patients with a high, medium or low vasomotor tonus. That is inherent in their constitution. There have been some efforts made to measure this, but it is certainly true that a patient with a high vasomotor tonus plus arteriosclerosis is going to get a far better result from sympathectomy than a patient with a low vasomotor tonus. Lumbar sympathectomy, of course, is not a cure-all for peripheral vascular sclerosis. I tried to emphasize that this operation is applicable to only a very limited number of patients. Many of them, of course, have acute lymphangitis, many have massive gangrene and many are toxic. It would be folly to waste time on conservative therapy. They need amputation; they need amputation in a hurry, possibly a two stage amputation. Sympathectomy is really not only an early therapeutic but a preventive measure to ward off later disaster.

A CONTRIBUTION TO THE STUDY OF ECLAMPSIA

Consideration of Two Hundred Cases

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With the assistance of T. S. Hill, M.D., and Hudson Jost, Ph.D., on the electroencephalographic tracings

A final classification of the toxemias of late pregnancy has not yet been made, nor can it be made until etiologic factors are more definitely known. An attempt at uniformity in terminology was made by the suggested classification of toxemias of pregnancy by the American Committee on Maternal Health (1939), and this classification has been widely adopted. A voluminous literature has arisen and individual volumes have been written on this complicated problem. Therefore a review of the literature is not attempted herein. This paper limits the term toxemia of pregnancy to include only preeclampsia and eclampsia, because renal disease of pregnancy and hypertensive disease are other entities.

In the past the most plausible theory has been that this condition is the result of a toxin circulating in the blood stream which upsets the water balance and causes changes in the liver, directly or indirectly, and degenerative changes in the kidneys and that convulsions occur because of direct action of a toxin on the cerebral cortex or because of intracranial pressure due to edema. We would rather define this disease of pregnancy as probably related to nutritional deficiencies and characterized by a syndrome of symptoms and distinct pathologic lesions which are associated with angiospasm.

Dr. Henry Chin was formerly of Peiping, China.

Read before the Section on Obstetrics and Gynecology at the Ninety-Fifth Annual Session of the American Medical Association, July 3, 1946.

From the Departments of Obstetrics and Gynecology of the Peiping Union Medical College, China, and the University of Tennessee College of Medicine.

MATERIAL

In the literature many factors of doubtful importance are mentioned. This has led us to review our cases to determine if some of these factors are really significant. The present report comprises data on 100 consecutive eclamptic patients from the obstetric and gynecologic service of the Peiping Union Medical College Hospital, Peiping, China, observed during the years 1935 to 1941. These cases are compared with those of 100 consecutive eclamptic patients from the department of obstetrics and gynecology of the University of Tennessee at Memphis, observed during the years 1941 to 1945 (table 1). Henceforth the group from Peiping will be designated group 1 and that from Memphis group 2. The 100 cases of women with convulsive seizures in group 1 occurred among 4,553 deliveries, giving a hospital incidence of 2.2 per cent, while in group 2 the same number of convulsive patients were encountered in 8,797 deliveries, giving a hospital incidence of 1.2 per cent. The highest seasonal incidence in both groups was in the summer and autumn, and the age incidence was practically the same. Inasmuch as each group consists of 100, each patient represents 1 per cent. All the patients from Peiping were Chinese, while in the Memphis series 96 were Negro and 4 white. The assertion by numerous authors that eclampsia is a disease of primiparas is borne out by our cases; in the Chinese series 75 were primiparas and 25 multiparas, while in the Memphis group 72 were primiparas and 28 multiparas. In group 1 there were 73 who had not previously been seen in the outpatient clinic, while in Memphis 55 were admitted to the hospital without previous treatment, which emphasizes the value of prenatal care.

In regard to the appearance of convulsions in relation to the labor, 75 of group 1 were antepartum, 10 intrapartum and 15 postpartum, while 77 of group 2 were antepartum, 6 intrapartum and 17 postpartum. The stage of gestation conformed to the reports of others, as 98 cases in group 1 and 99 in group 2 occurred after the sixth month of pregnancy.

The uncorrected mortality rate shows maternal death in 20 and fetal death in 36 cases of group 1, while in group 2 maternal death occurred in 14 and fetal death in 20 instances (table 2). In group 1, 53 patients were treated by means of morphine and chloral hydrate. There were 4 cesarean sections; 2 of these patients died. The total of deaths among the 53 mothers was 14. Forty-seven mothers were treated by the use of magnesium sulfate solution given intramuscularly, barbiturate preparations and intravenous hypertonic dextrose; in general they were given the combined treatment recommended by Dieckmann.[1] There was only 1 cesarean section. Of the 47 mothers, 8 died, while in group 2 in which 58 were treated by the combined method and 5 were safely delivered by cesarean section there was a total of 10 deaths. Forty-two patients in group 2

1. Dieckmann, W. J.: The Toxemias of Pregnancy, ed. 1, St. Louis, C. V. Mosby Company, 1941, p. 428.

were treated by the combined method in addition to the use of veratrum viride. Morphine was not used. There were 7 cesarean sections; 1 death occurred. The total maternal deaths among the 42 mothers was 4. In general, one may say that the results of treatment improved in direct proportion to the more conservative methods of management. There were only 5 cesarean sections in group 1 with 3 deaths and 12 cesarean sections in group 2 with 1 death. However, these surgical interventions were carried out in the latter half of each series after the disease had been brought under control, which emphasizes the importance of this factor.

TABLE 1.—*General Summary*

	Group 1, Peiping, China, 1935-1941	Group 2, Memphis, Tenn., 1941-1945
Consecutive eclamptic patients	100	100
Deliveries	4,553	8,797
Per cent	2.2	1.2
Season:		
Spring	14	17
Summer	28	37
Autumn	29	29
Winter	29	17
Age	14 to 45	15 to 41
Race:		
Chinese	100	0
Negro	0	96
White	0	4
Parity:		
Primiparas	75	72
Multiparas	25	28
Gestation in 3d trimester	98	99
Blood pressure after convulsions:		
Lowest	90/ 80	120/ 80
Highest	220/140	270/160
Average	150/102	175/100
Blood chemical findings, mg./100 cc.:		
Nonprotein nitrogen	34.0	32.0
Uric acid	6.4	6.4

TABLE 2.—*Treatment Survey and Mortality*

Group 1		Group 2	
Stroganoff method	53	Combined method of Dieckmann	58
Morphine sulfate		Barbiturates and $MgSO_4$ intramuscularly	
Chloral hydrate		Intravenous hypertonic dextrose	
Cesarean sections with 2 deaths	4	Morphine sulfate	9
Mortality	14	Cesarean sections	5
		Mortality	10
Combined method	47		
Barbiturates and $MgSO_4$ intramuscularly		Combined method plus veratrum viride	42
Intravenous hypertonic dextrose		Cesarean sections with 1 death	7
Cesarean sections	1	Mortality	4
Mortality	8		
Total uncorrrected mortality		Total uncorrrected mortality	
Maternal	22	Maternal	14
Fetal (17 were less than 2,000 Gm.)	36	Fetal (4 were less than 2,000 Gm.)	20

The results of the chemical analyses performed on the blood in all cases are in accord with those in previous reports. In group 1 the average level of nonprotein nitrogen was 34 mg. and that of uric acid, 6.4 mg. per hundred cubic centimeters of blood, while in group 2 the findings were 32 mg. and 6.4 mg., respectively.

Consideration of the two groups of eclamptic patients totaling 200 cases provides some interesting, although for the most part negative, observations. The fact that the patients in these two groups live on opposite sides of the earth and that one group comes from a cold, dry climate and the other from a moist, warm climate made no difference, nor were differences due to race or color significant. The incidence with reference to parity was almost identical. In both groups the disease occurred among the underprivileged or indigent, who could be expected to have nutritional deficiencies.

From May 1, 1941 to Dec. 31, 1945, which is the time considered in group 2, there were 23,352 deliveries in the private hospitals of the city of Memphis, Tenn., and in 68 of these the patients had eclampsia. This is an incidence of 0.29 per cent. Most of the 68 patients were on the charity services of the hospitals.

PATHOLOGY

When the liver of a woman who died in eclampsia is cut across, the cut surface may feel granular. Small, elastic walls of the blood vessels have retracted, and the protruding thrombi provide the granular sensation. The increased clotting properties of the blood are probably concerned in this mechanism. Ischemic necrosis and hemorrhage are apt to be found in the portal spaces. Thromboses of the radicles of the portal vein have long been considered important in this mechanism. However, angiospasm which affects the hepatic arterioles may also be concerned.

Lesions of the kidney are not constant and have been considered either primary or secondary in this disease. The latter view is probably correct. Various degrees of nephritis occur but are not constant. Of importance is the frequency with which the glomerular tuft is found empty, which would explain the suppression of urinary excretion on the basis of angiospasm. The observation of occasional thrombi in the vessels leading to the glomerulus is also explained on the same basis. Inasmuch as the blood supply of the collecting tubules is secondary to that received by the glomerulus, it is not surprising that the degenerative changes are first found in the tubules. Dill and Erickson [2] have shown by experimental evidence that renal ischemia is concerned with this disease, and this is in accord with clinical observations which are explained as the result of angiospasm.

The brain shows varying degrees of edema and hemorrhagic foci. Fatty degeneration of the heart and other organs is a secondary manifestation.

ETIOLOGY

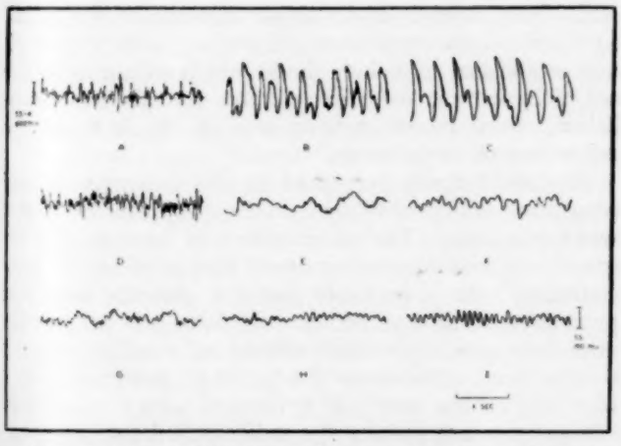
The cause of eclampsia is not known. Clinical observation and research have yielded sufficient information, however, to materially change our concept in this regard. The ophthalmologists were first to observe that the small blood vessels in the retina were constricted in the presence of preeclampsia and eclampsia. It had long been known that the volume of urine was decreased and that the degree of suppression corresponded to the severity of the disease. There were those who recognized that the decrease in the volume of urine could also be explained on the basis of angiospasm. It is probable that this constriction of the arterioles is generalized not merely in the eye and kidneys but throughout the entire body. This would account for the rise in blood pressure, which is either gradual and prolonged in the preeclamptic stage or sudden when it precedes convulsions. It had also been noted that the duration of hypertension might be more important than the severity of the disease, that is, the patient who had an elevation of blood pressure which was existent for several weeks might suffer permanent renal damage, even though convulsions did not occur. However, in a rapidly developing toxemia which lasted only a few days, even though attended with convulsions, there might be no permanent damage to the kidneys. This latter obser-

2. Dill, L. V., and Erickson, C. C.: Effect of Constriction of the Renal Arteries in Pregnancy and in Certain Endocrine States of Rabbits, Arch. Path. **31**: 68 (Jan.) 1941.

vation may have led early investigators to conclude that the disease conferred an immunity.

Many have believed that the placenta produces a pressor substance, but it could be reasoned equally as well that a pressor substance is always present during pregnancy but that a counteracting removal of the pressor substances is absent or diminished in cases of preeclampsia and eclampsia. It may be that the constriction of the small blood vessels alters the vessel wall sufficiently to aid in the production of edema. On the other hand, one must consider that the lack of excretion or removal of certain metabolites and steroids is concerned with the production of edema.

Also, there must be sufficient concentration of the serum proteins in the blood stream to prevent the fluid from becoming extravascular. With this in mind, we determined the number of red blood cells, the amount of hemoglobin and the total proteins in the plasma of 200 Negro women and 100 white women. All patients were pregnant. The average determinations were within normal limits and were not significant in those patients with toxemia of late pregnancy. However, in 2 eclamptic patients with total serum proteins of less than 4 Gm. per hundred cubic centimeters of blood, the



Electroencephalographic tracings taken in eclamptic convulsions and recovery (compare with table 4).

administration of large volumes of plasma, totaling in each instance more than 2,000 cc., resulted in recovery of the patient. When the total serum proteins are decidedly deficient the patient may be benefited by attempts to restore the proteins to normal levels.

If the cold pressor test is applied to a patient with a moderate degree of preeclampsia the results are significant. With the patient's hand and forearm in ice water and the blood pressure recordings being taken on the opposite arm, the blood pressure rises to an alarming degree. Albumin in the urine may increase, and the patient may even have a convulsion. It is clear that the exciting cause of the elevation in blood pressure is not the constriction of the arterioles in the arm but the spread of this constriction by means of the sympathetic nervous system until angiospasm becomes generalized. One immediately wonders whether this formula could be reversible. Angiospasm in this disease seems certain and is compatible with the physiologic explanation of its causation, which was suggested by Hofbauer.[3]

3. Hofbauer, J.: The Evolution of the Biologic Concept of the Etiology of Late Toxemia, Am. J. Obst. & Gynec. 51: 514 (April) 1946.

ELECTROENCEPHALOGRAPHIC STUDIES

Although intracranial pressure must be considered a factor in the presence of appreciable edema this thesis does not explain the so-called dry type of eclampsia or, probably, that with mild or moderate edema. We thought it desirable to determine whether the imme-

TABLE 3.—*Blood Findings in Pregnant Women of the Midsouth*

	Red Blood Cell Count	Hemoglobin, Gm./100 Cc.	Plasma Protein, Gm./100 Cc.
200 unselected Negro patients			
Highest	5,580,000	14.5	8.00
Average	4,140,000	11.2	6.83
Lowest	2,500,000	8.5	5.50
23, or 11.5%, with toxemia			
Highest	5,370,000	14.5	8.00
Average	4,310,000	11.5	7.13
Lowest	3,490,000	9.2	6.00
100 unselected white patients			
Highest	5,600,000	14.5	7.60
Average	4,080,000	11.6	6.50
Lowest	2,800,000	7.8	5.50
4, or 4%, with toxemia			
Highest	4,300,000	12.4	7.40
Average	3,950,000	11.3	6.80
Lowest	3,270,000	10.5	6.40

diate onset of convulsive seizures is due to angiospasm as well as to the rise in blood pressure and the decrease in the volume of urine.

The use of electroencephalographic tracings to detect the abnormal functioning of neurones in the cerebral cortex during the convulsive and preconvulsive stages of eclampsia as well as the evidences of improvement in cortical function in relationship to treatment was suggested by Dr. T. S. Hill, professor of psychiatry at the University of Tennessee College of Medicine.

The accompanying figure presents samples of the electroencephalographic tracings made on an eclamptic patient during a convulsion and as the patient improved coincident with, and subsequent to, the administration of a continuous caudal analgesia. These tracings were recorded and are herewith described (table 4) by Dr. Hudson Jost, director of the psychophysiological labora-

TABLE 4.—*Blood Pressure and Medication in Eclamptic Convulsions*

Tracing	Date	Time	Medication	Blood Pressure	Sensitivity
A	4/10/46	11:48 a. m.		170/120	SS —4
		11:55 a. m.	30 cc. metycaine hydrochloride 1.5%		
B	4/10/46	11:56 a. m.		150/120	SS
		12:05 p. m.	15 cc. metycaine hydrochloride 1.5%		
C	4/10/46	12:15 p. m.		140/ 90	SS
		12:20 p. m.	15 cc. metycaine hydrochloride 1.5%		
D	4/10/46	12:21 p. m.		150/120	SS —4
E	4/10/46	12:25 p. m.		60/ 10	SS
F	4/10/46	12:37 p. m.		100/ 55	SS
G	4/11/46			130/110	SS
H	4/17/46			108/ 64	SS
I	4/22/46			100/ 75	SS

The tracings are given in the accompanying graphic record.

tories of the department of psychiatry. In comparing the abnormal tracings with the normal in the illustration, reference should be made to tracing *I* (table 4), the only essentially normal one obtained on this patient.

Tracings *A* through *F* are samples of recordings taken at intervals during the administration of metycaine hydrochloride from 11:48 a. m. to 12:37 p. m., April

10, 1946. *A* was recorded during a generalized eclamptic convulsion immediately prior to the administration of metycaine hydrochloride when the blood pressure was 170 systolic and 120 diastolic. *D* is that of a tonic convulsion which appeared before the blood pressure was lowered by the caudal analgesia. The amplitude of both *A* and *D* is decreased 97 per cent in comparison to the standard sensitivity wherein 1 cm. equals 100 microvolts, as shown in the other sample tracings. The calibration for tracings *A* and *D* is given in the upper left hand corner of the figure. The standardization for the remaining tracings is shown in the lower right hand corner of the figure. *B* and *C* depict the interconvulsive pattern which is similar to the wave forms found in petit mal epilepsy. *E* shows the electroencephalographic tracing after the blood pressure had dropped to 60 systolic and 10 diastolic and the patient was comatose. *F* was obtained when the blood pressure was reestablished at 100 systolic and 55 diastolic. It will be seen that the cortical potential pattern is not completely normal, although the amplitude of the waves had decreased and their frequency had increased to produce a somewhat less abnormal pattern.

Tracings *G*, *H* and *I* depict samples of recordings made at intervals of one, seven and twelve days. *G* represents an electroencephalographic tracing taken on April 11, 1946, the day after delivery when the blood pressure was 136 systolic and 110 diastolic. *H* was obtained seven days later, at which time the blood pressure was 108 systolic and 64 diastolic and the electroencephalographic tracing was almost normal. The final sample, *I*, was taken twelve days following delivery, at which time the tracing was essentially normal.

TREATMENT

Prenatal care has done much to decrease the incidence of eclampsia. Its prevention by frequent prenatal visits is preferable to the best methods of treatment. One should adopt the attitude that every pregnancy is a potential cause of toxemia. With a systolic blood pressure of 135 mm. of mercury or more, the patient must be advised in regard to the intake of fluids and cautioned against the use of sodium chloride. Advice on elimination and a proper diet which includes the minerals, vitamins and first class proteins is of especial importance. A sudden increase in body weight is significant, as this is the first indication of a failure of renal function. One indisputable factor is the seriousness of a decrease in the volume of urine. In the presence of oliguria the patient's condition will deteriorate, and in the presence af anuria death is certain. Elimination by means of sweating and purging has been unsuccessful, and therefore all methods of medical management have depended for success on elimination through the kidneys regardless of the intent of the medical attendant. For example, the well known method of Stroganoff recommended the use of large amounts of morphine and chloral hydrate. As the central nervous system was depressed to the extent that respirations were definitely slowed, sufficient relaxation of angiospasm probably resulted. If the volume of urine increased the patient might recover, but if anuria persisted death ensued. The Temple treatment of Arnold and Fay suggested repeated spinal drainage and the intramuscular use of magnesium sulfate. In the presence of extensive edema cerebral edema is no doubt a factor, and therefore the treatment has been effective in some cases. The use of large doses of the barbiturates probably has the same effect of relaxing angiospasm.

Veratrum viride or its derivatives have been used in the treatment of eclampsia since the middle of the seventeenth century, and the relaxation of angiospasm is accomplished directly by the use of this drug. We have been using a modification of the combined method of treatment suggested by Dieckmann, and for an accurate description of the method one should refer to his several publications. We agree with him that at least 500 cc. of 20 per cent dextrose solution should be given intravenously, provided that cardiac insufficiency and/or pulmonary edema is not to be expected. The injection may be repeated in six to eight hours and the volume of urine determined accurately by opening a previously inserted indwelling catheter. Sedative drugs, such as a 25 per cent solution of magnesium sulfate, may be given intramuscularly or occasionally intravenously, and various barbiturate compounds, preferably phenobarbital sodium, may be given in doses of 0.3 Gm. intramuscularly as necessary. We had long considered the use of paravertebral block to include the sympathetic nerves to the region of the kidneys but did not carry out this procedure. On 6 eclamptic patients we relieved angiospasm by means of continuous caudal analgesia administered by Dr. Robert A. Hingson. The number is so small that the fact that all survived is not significant. However, after the block was established to include the kidney level and with the aid of hypertonic dextrose solution diuresis was established, which in our opinion was on the basis of the relaxation of angiospasm.

The word toxin in regard to the toxemias of late pregnancy will probably in time be supplanted by the word hormone. The observations of various investigators are now at such variance that a review is only confusing. It is probable that the placenta does not produce a toxin but rather stimulates the production of pressor substances which are not sufficiently destroyed by the liver. Therefore the factor of nutrition enters into the problem and is in agreement with the fact that our patients are usually the indigent and the malnourished.

Although the incidence of eclampsia was reduced during the starvation period after World War I, and this situation will probably be found in regard to World War II, nevertheless pregnant women were obtaining sufficient protective substances in their decreased diets. The deficient diets of both groups reported are similar. The Chinese poor eat rice, millet and koa-liang, a kind of corn. The poor of the Midsouth eat cornbread, salt fat pork and various types of beans. It is clear that the first class proteins, vitamins and, to some extent, essential minerals are deficient in the diets of the two groups.

In considering eclampsia one of the first questions is "Where do we see eclamptic patients?" Regardless of the geographic location it is clear that for the most part we see them on the charity services of the hospitals. This was apparent from our observations in the Philippines (1942-1943) where, at the Philippine General Hospital, we saw a large number of eclamptic patients; they too were among the indigent group.

COMMENTS AND SUMMARY

Study of the data contained in this report brought out several factors. Race did not seem to be significant. There was no appreciable difference in the two groups

in regard to the ages and parity of the patients concerned. The stage of gestation was almost identical. The blood chemical findings are very similar, and the lower blood pressures in group 1 are in accord with the low blood pressures which are in general found among the Chinese. The high incidence of eclampsia among the Chinese is significant, and the incidence in our group in the Midsouth is unusually high. This high incidence will be reduced only when the public is better informed on the benefits of prenatal care, which includes advice in regard to a properly balanced diet during pregnancy. We must look far into the future before being able to report such a small incidence of eclampsia, namely, 0.018 per cent, as was reported by Davis and Gready [4] of the Chicago Lying-In Hospital. Our mortality rate among eclamptic patients in either Peiping, China, or Memphis, Tenn., does not compare favorably with that reported by others. In the reduction of this mortality not only is an appreciation of the value of prenatal care essential but also it would be wise to adopt uniformly a review committee to investigate all maternal deaths, as was done in 1934 in Philadelphia and reported by Williams.[5]

Our figures on the red blood cell counts and hemoglobin determinations are somewhat lower than those commonly reported. In the toxemic group they are difficult to evaluate because of the blood dilution of pregnancy and the blood concentration associated with the toxemias. Total plasma protein determinations were not significant except when appreciably lowered.

Rosenbaum and Maltby [6] have suggested that an electroencephalogram might be used to predict the development of eclampsia in patients. We had long hoped to demonstrate that the immediate cause of the convulsions of eclampsia is or may be angiospasm. Electroencephalographic tracings were made on 6 eclamptic patients during convulsions. All the tracings are similar, but those used in this report were more clearcut. It is significant that an eclamptic patient treated with veratrum viride gave the same type of tracing. One might contend that the alteration in the tracings is the result of the fall in blood pressure, and this is probably correct, for the fall in blood pressure is due to the relief of angiospasm whether by the use of regional nerve blocking or by the action of a drug, such as veratrum viride. We are not experts in the use of the electroencephalograph but are willing to accept the advice and interpretation of those who are. It is the opinion of Drs. Hill and Jost that these tracings demonstrate anoxemia of the brain which we consider to be due to angiospasm. However, it is clear that in the presence of extensive edema other factors require consideration. It seems reasonable to conclude that angiospasm is probably both the immediate basis for the syndrome of eclampsia, accounting for the gradual or sudden rises in the blood pressure and the suppression of urinary excretion, and the exciting cause of the convulsive seizures in some patients. The placenta is probably the stimulating factor in the patient's production of pressor substances. Methods of medical management rely for their success on the relaxation of anginospasm directly or indirectly.

4. Davis, M. E., and Gready, T. G., Jr.: A Review of the Maternal Mortality at the Chicago Lying-In Hospital, 1931-1945, Am. J. Obst. & Gynec. **51**: 492 (April) 1946.

5. Williams, P. F.: The Preventive Aspects of Maternal Mortality, J. Michigan M. Soc. **42**: 25 (Jan.) 1943.

6. Rosenbaum, M., and Maltby, G. L.: Cerebral Dysrhythmia in Relation to Eclampsia, Arch. Neurol. & Psychiat. **49**: 204 (Feb.) 1943.

ABSTRACT OF DISCUSSION

DR. ROBERT N. RUTHERFORD, Seattle: I enjoyed Dr. Whitacre's paper a great deal because he presented two series of cases from diametrically opposed racial groups of the same general sociologic level, and yet the figures from both China and Tennessee could be interchanged without significant alteration. The potential value of the electroencephalogram as an agent in predicting which patients with impending preeclampsia may go on to a more serious clinical state is an interesting observation. The investigative work which has been done suggests that malignant angiospasm or malignant vasospasm is the cause. An analogy might be drawn between the malignant angiospasm of the eclamptic state and arteriosclerosis. If the angiospasm is maximal in the cerebral circulation, there is toxemia with convulsions (in arteriosclerosis, a cerebral accident). If it hits largely in the kidney, the anuria-oliguria problem must be combated, with its final stage the cortical necrosis of the kidneys. And all physicians are aware of toxic separation of the placenta, in which the emphasis is placed on the uterine circulation; angiospasm has done its worst damage there. If this is accepted as the concept of deranged physiology, the cause is still unknown. Logically it would concern the placenta, since that is the only new endocrine organ introduced into the pregnant body and it is removed at the end of pregnancy. The line of investigation most attractive to the discussant is the work on acetylcholine esterase, the enzyme produced for the destruction of acetylcholine by the placenta as by other tissues of the body. If an imbalance exists, the angiospasm is possibly due to an overemphasis of the influence of the sympathetic nervous system on the cardiovascular-renal system. Hence, the abnormal endocrine pattern, the disordered laboratory findings and the confused clinical pictures spring from this imbalance which is caused by abnormal production of this enzyme by the placenta. The latest weapons for application in this eclamptogenic syndrome aim at releasing the malignant vasospasm. First is veratrum viride, which gives increased parasympathetic effects: it is an old drug whose use has been revived with a better understanding of its physiologic application. The other is the use of continuous caudal or spinal anesthesia in a variety of ways which temporarily relieve the angiospasm.

DR. R. LUIKART, Omaha: Since the advent of sulfonamide drugs and penicillin chemotherapy many of the obstetric complications due to infection have almost disappeared. Toxemia of pregnancy has become the number one enemy. Dr. Whitacre put his greatest emphasis on the study of eclampsia per se but said little of prophylaxis. The high mortality in such cases as here reported, which have been so well managed, makes one realize that prevention necessarily is the treatment of choice. A series of more than 1,000 obstetric patients who were organically sound and of normal weight reached term without the development of toxemia in 1 patient, i. e., no systolic blood pressures above 140 or diastolic above 85 and no appreciable albuminuria or retention of fluid. This was accomplished by holding the patient's gain in weight to not more than 2 pounds (0.9 Kg.) in any one month. The diet was high in protein, mineral and vitamins (the blood-making and baby-building foods). The amounts of carbohydrates and fats in the diet were restricted in accordance with the patient's gain in weight. The results in this series were so gratifying that in my opinion a selected diet, proper ingredients and amounts along with good hygienic prenatal care will go far to reduce eclampsia and obstetric deaths.

DR. FRANK E. WHITACRE, Memphis, Tenn.: In regard to Dr. Rutherford's discussion about the cause of eclampsia as related to the placenta, it seems to me that the placenta is in all probability the stimulating factor—not that it produces any toxin. It is very probable that the word toxin will in time be replaced by the word hormone, but at present the results of the work of the numerous investigators are at such variance that to review them would only be confusing. I want to thank Dr. Luikart also. Prophylaxis, of course, is the only means of effectively treating disease. The attack on eclampsia will be carried out in the same way as the attack on other disease entities; it must be made by combat teams of the men skilled in basic science working in conjunction with the clinicians.

CONCEPTS DERIVED FROM INVESTIGATIONS PERTAINING TO HIGH ALTITUDE FLIGHT

CAPTAIN A. R. BEHNKE (MC), U. S. NAVY
Bethesda, Md.

In the early days of aviation, just preceding World War II, it became apparent that the structural, biomechanical, psychologic, physiologic and chemical descriptions of man were scarcely more than fragmentary when he was considered in relation to the problems inherent to his most recently created environment. Of necessity considerable progress was made during the war in adding to these descriptions. Increased knowledge has afforded him at least partial protection against the formidable stresses of flight. In many cases expedient or makeshift devices based on none too well established conclusions have been employed in his behalf. Nevertheless, at the end of the war man was flying at speeds of about 500 miles per hour and at altitudes approximately 8 miles above the earth.

The problems in aviation medicine are becoming even more numerous and more difficult in this postwar era,

TABLE 1.—*Average Pulse Rate Response to Exercise* of Forty Men on Two Occasions (Interval of Five Days)* [4]

	Standing Pulse Rate		Pulse Rate 5 to 20 Seconds After Exercise		Pulse Rate 105 to 135 Seconds After Exercise	
Date	June 7	June 12	June 7	June 12	June 7	June 12
Range	64-116	64-116	23-39	23-39	32-58	29-57
Mean	92	88	33	32	44.6	42
Median	92	88	33	31	43	41
Interquartile range †	80-104	80-96	30-36	28-35	41-49	35-49

* Twenty step-ups in thirty seconds on a platform 18 inches high, the same leg being used, timed with a metronome.

† Tenth and thirtieth pulse rate values (25 per cent above and below median), when these values are averaged in order of increasing magnitude.

in which man, in flight, is pursuing and will soon be outdistancing sound itself. The chief medical problem, protection against high accelerative forces, suggests the difficulties confronting the physiologist in altering, for example, a homeostatic circulatory arrangement that evolved in an environment of relatively slow motion. The aviation engineer of necessity must now adapt his design to conform with the tolerances and the capabilities of the man.

It is my purpose in this paper to enumerate some of the concepts and conclusions derived from extended research programs of the National Research Council, the Army and the Navy which are of interest to doctors of medicine and to mention some of the investigations currently under way which may have significant medical implications.

From the Naval Medical Research Institute, National Naval Medical Center.

Read in the symposium on "Physiology of High Altitude Flight" before the Section on Pathology and Physiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

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SELECTION TESTS AND EVALUATION OF PERFORMANCE

The exemplary accomplishments in administration, selection and training have made possible the expansion in army and naval aviation medicine and the preparation of as many as 50,000 army men monthly for combat duty. The psychologist has played a significant role in these achievements. In applying the same effective principles underlying the medical history he has replaced intuitive methods for selection of aviation candidates by a predictive procedure employing biographic information in a statistically exact arrangement. Thus in an analysis of 8,615 records it was found that the men who scored A on the inventory had a failure rate of only 11 per cent, while those who scored E had a failure rate of 59 per cent.[1]

For evaluation of combat performance, Capt. J. G. Jenkins, H(S), U.S.N.R., introduced a novel "nominating technic." Each pilot interviewed was requested to submit the names of four pilots, two with whom he would like to fly in combat and two with whom he would not like to fly in combat. The respondents indicated the reasons for their selections. This procedure allowed for various comparisons with the ratings obtained from preflight training selection tests. The significant correlation between physical fitness and combat performance [2] is of special interest. Physical training records of 1,354 men were analyzed, of whom 707 had been chosen one or more times for the "low" combat group and 647 one or more times for the "high" combat group. The results indicated that the more desirable combat naval aviators in World War II (as nominated by their fellow pilots) tended to be taller, stronger and more athletically inclined and physically fit than were the less desirable aviators. Further, the more desirable combat aviators did significantly better in the physical training phases of the preflight program than did the men less desired as partners in combat.

Physical fitness tests as embodied in the Army Air Forces' battery and the step-up test [3] and its modifications have been of value chiefly for group comparisons (table 1) [4] or for an individual if a pattern of responses has been established. The importance of the age factor of course has been demonstrated in all military operations calling for endurance, agility and quickness of response. It is observed also in a quantitative manner as a sharp decline of endurance muscular performance with age in homogeneous groups of men 18 to 30 years of age who have engaged in the same physical training program.[5]

Pulse rate response to moderate exercise of only thirty seconds' duration, as in a step-up test, would appear to have wide application not only in the services but in routine industrial medical examinations, especially in those instances in which exposure to toxic substances may occur. An unusual shift of the mean group value after a "normal" curve had been established (fig. 1)

1. Jenkins, J. G.: Prediction of Flight Training Performance by Biographical Data, J. Aviation Med. **15**: 131-135 (April) 1944.

2. Channell, R. C., and Fosberg, I. A.: Unpublished data, March 1946.

3. Behnke, A. R.; Welham, W. C.; White, W. A., Jr., and Pace, N.: The Step-Up Test to Evaluate Fitness for Physical Exertion in Healthy Men, Research Project X-134, Report No. 2, Naval Medical Research Institute, Dec. 6, 1943.

4. Behnke, A. R., and Duffner, G. J.: Environmental and Physiologic Studies Aboard Air Cooled Hospital Ships, Research Project X-203, Report No. 4, Naval Medical Research Institute, Oct. 10, 1945.

5. Pace, N.: Influence of Height, Weight and Age on the Step-Up Test: Unpublished Analysis of Data Obtained on Naval Personnel, Project AVX-36 (Fl-Z), United States Navy Department, Bureau of Medicine and Surgery, September 1942. Karpovich, P. V., and Green, E. L.: Physical Fitness and Age of Army Air Forces Personnel, J. Aviation Med. **17**: 96-99 (Feb.) 1946.

would serve to call attention to deleterious environmental factors in a manner similar to that outlined by Foulger and Fleming[6] on the basis blood pressure recordings. To be of value, however, an exercise test must be carried out at the same time each day and

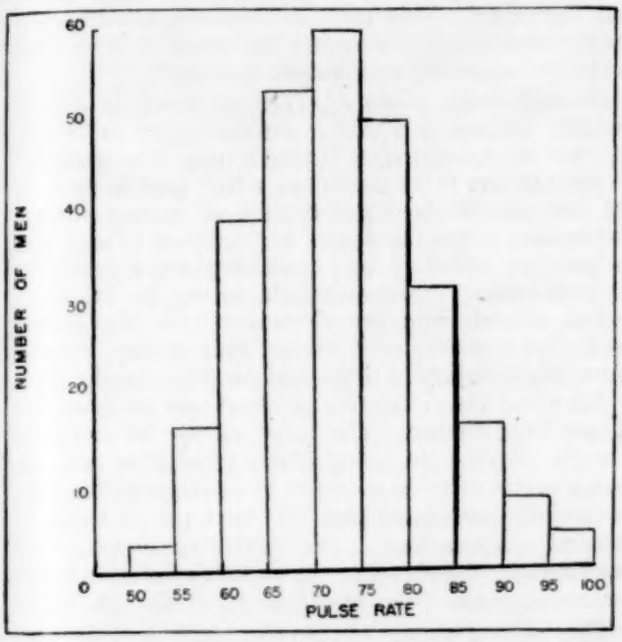

Fig. 1.—Histogram[2] showing the distribution of pulse rates obtained on a group of 281 Marines following exercise consisting of 20 step-ups to a height of 18 inches during a period of thirty seconds. The score recorded is the summation of pulse rates B + 2C, where B is the pulse rate five to twenty seconds after exercise and C is the pulse rate 120"-135" post exercise.

the pulse rate must be ascertained accurately. As with any laboratory procedure, if carried out with utmost care such testing constitutes a most helpful adjunct but not an absolute criterion in evaluating fitness for muscular exercise and the degree of deviation from "normal" performance.

BODY COMPOSITION

Height-weight tables fail to provide accurate estimates of the amount of fat in a given individual. This estimate is of importance in military medicine, as obese persons are more susceptible to decompression sickness following both ascent to high altitudes and from diving depths. It also may be of value in describing overall fitness. From determinations of body density, employing a method of hydrostatic weighing based on the Archimedes principle of volume determination by water displacement, it appears that the specific gravity of the body varies inversely with, and is chiefly affected by, the amount of fat present.[7]

The concept that the body consists of a lean mass of constant composition and that accumulated fat is the major component responsible for alterations in specific gravity has been further strengthened by the quantitative studies of Rathbun and Pace.[8] These investigators obtained the same range of values, 1.021 to 1.097 in adult guinea pigs, as has been found for man. Aliquot fat-free samples of pulverized body tissue, including bone, yielded a value of 1.098. The inverse relationship, moreover, postulated for man as existing between specific gravity and fat content, has been established for the guinea pig (fig. 2).

The concept that the lean body mass is of uniform composition in mammalian species is further supported by the small variation in the percentages by weight of water and of combined nitrogen in aliquot samples of pulverized, fat-free tissue (fig. 3).[9]

ASCENT TO HIGH ALTITUDES (DECOMPRESSION)

Expansion of Abdominal Gas.—The increase in gas volume during ascent to altitude, which may be as great as fourfold at 30,000 feet, is frequently the cause of distressing abdominal pain. With the exception of certain food items, the origin of intestinal gas is swallowed air. Empirically, the following impressions are repeatedly strengthened: (*a*) Overdistention of the stomach and large bowel by expanding gas, even though slight, stops peristalsis and prevents elimination of gas, and (*b*) the amount of gas in healthy persons with good intestinal function is small and of the order of 200 cc. or less. Under conditions of semistarvation and the resultant poor physical condition together with a probably higher proportion of gas producing foods in the ration, it was found that one of three experimental chamber ascents had to be terminated because of gas pains. Further investigation should lead to an estimate of the degree of impairment of gastric and intestinal motility in relation to gas content of a viscus and should serve to test the validity of the hypothesis that effective alimentary function bears an inverse relation to gas content of abdominal viscera.

Explosive Decompression.—The engineer has been required to provide pressurized cabins in aircraft designed for great altitudes in order to prevent extreme decompression of the personnel. In such pressurized aircraft the possibility of sudden loss of pressure creates the hazard of explosive decompression, involving expansion of abdominal gases, overdistention of the lungs and

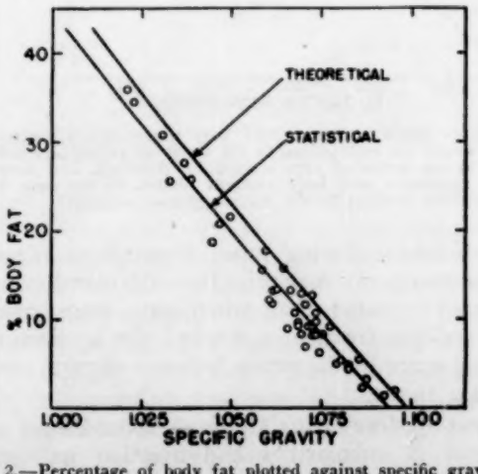

Fig. 2.—Percentage of body fat plotted against specific gravity for the guinea pig. The range of values is the same as those for man (after Rathbun and Pace[9]).

even boiling of the blood and body fluids at body temperature. It has been found by German investigators that explosive decompression, irrespective of rate and magni-

6. Foulger, J. H., and Fleming, A. J.: Industrial Exposure to Toxic Chemicals, J. A. M. A. **117**: 831-836 (Sept. 6) 1941.

7. Behnke, A. R.: The Absorption and Elimination of Gases of the Body in Relation to Its Fat and Water Content, Medicine **24**: 359-379 (Dec.) 1945.

8. Rathbun, E. N., and Pace, N.: Studies on Body Composition: I. The Determination of Total Body Fat by Means of the Body Specific Gravity; II. The Body Water and Chemically Combined Nitrogen Content in Relation to Fat Content, J. Biol. Chem. **158**: 667-676 and 685-691 (May) 1945.

9. Ashworth, U. S., and Cowgill, G. R.: Body Composition as Factor Governing Basal Heat Production and Endogenous Nitrogen Excretion, J. Nutrition **15**: 73-81 (Jan.) 1938. Rathbun and Pace.[8]

tude, does not produce injury of the lungs when the glottis is open. With the glottis closed, intrapulmonic pressures of the order of 80 mm. of mercury can overdistend the lungs and produce the type of air embolism seen in submarine escape experiments with the Momsen "lung." [10] The fundamental requisite to the production of pulmonary injury is the building up of intrapulmonic pressure to a level (about 50 to 80 mm. of mercury) where alveolar vessels rupture and air is aspirated into the circulation during succeeding respirations. Protection against rapid gas expansion or boiling of the blood can be afforded by suitable application of counterpressure or by precluding the possibility of increase in volume of the body.

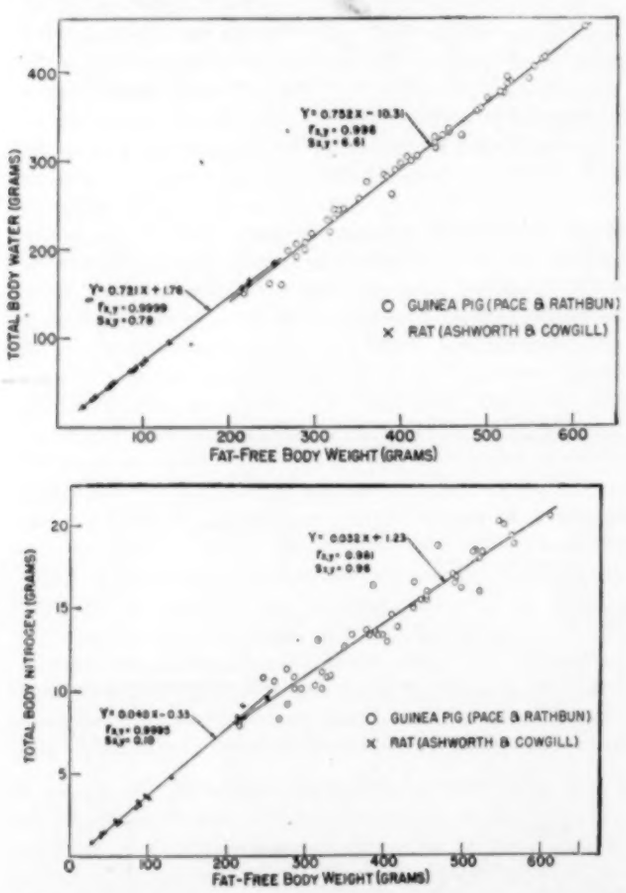
TOTAL BODY WATER (GRAMS)
FAT-FREE BODY WEIGHT (GRAMS)
O GUINEA PIG (PACE & RATHBUN)
× RAT (ASHWORTH & COWGILL)
TOTAL BODY NITROGEN (GRAMS)
FAT-FREE BODY WEIGHT (GRAMS)
O GUINEA PIG (PACE & RATHBUN)
× RAT (ASHWORTH & COWGILL)

Fig. 3.—Upper graph represents total body water plotted against the fat-free body weight for each animal in our series of guinea pigs and for each animal in the series of rats studied by Ashworth and Cowgill.[9] Lower graph represents total body nitrogen plotted on the same basis. The equations were obtained by the method of least squares.[9]

Pneumothorax.—During rapid decompression spontaneous pneumothorax may arise from the overdistended lung. Gersh [11] found that when cats were rapidly decompressed gas frequently reached the mediastinum and thoracic space by dissection between visceral pleura and alveolar tissue.

Treatment of Aero-Otitis Media.—About 25 per cent of personnel in submarines and aviation will show some degree of pressure trauma in the middle ear as the result of rapid alteration (compression usually) of barometric pressure. The incidence of "ear block" sufficient to prevent rapid accommodation to compression in chamber tests usually is considerably less but may vary from 5 to 20 per cent in individuals exposed. Treatment of the chronic type of this refractory and distressing ailment was only temporarily palliative prior to the introduction of radium applications to the tubal orifices by Crowe and Baylor [12] and Crowe and Burnam.[13] This type of treatment constitutes a major advance in preventing the most common difficulty in adjusting to pressure change.[14]

Decompression Sickness.—The incidence of decompression sickness is related to the conditions underlying gas bubble formation, which fall into two groups.[15] In the first are those conditions which tend to increase the free or dissolved gas content of tissues, namely the amount of fat, the degree and duration of exposure to pressure (diving) and, following rapid ascent to high altitudes, exercise, which serves to introduce carbon dioxide into the circulation. In the second group are variables such as age, time of day, temperature, fright, injury of tissue and the postalcoholic state, which affect the circulation of blood and the transport of gas from tissues. The factor of age in the sense that the 20 year old group is less susceptible to bends than a group seven or even five years older applies even to carefully preselected men who have passed stringent physical examinations. The results of thousands of low pressure chamber runs at various aviation training centers emphasize the significance of the age factor.

This second group of factors which is associated with circulatory and vasomotor phenomena appears to affect "effective blood flow" through tissue. An appreciation of the meaning of effective blood flow through tissues is derived from curves showing gas absorption prior to and following reactive hyperemia [7] and from a comparison of the tolerance of various animal species to rapid decompression following saturation exposures at high atmospheric pressures. Man tolerates a sudden drop in pressure of 2 atmospheres to 1, the dog and cat about 4 to 1, the guinea pig 5 to 1 and the mouse 6 to 1. The tolerance of various species for rapid decompression approximates values for basal metabolic rate per unit of body weight. Even in the same species (man), bearing in mind the importance of the age factor, one would expect a fair correlation between basal metabolism and bends susceptibility in the resting state.

The symptoms of decompression sickness observed at high altitudes and those following deep sea diving are similar with one exception: the spinal cord, in some remarkable manner, escapes injury in the low pressure chamber. The importance of the factor of exercise in precipitating bends at decreased pressure appears to be related to an enlargement in size of small bubbles, which otherwise might be innocuous, by an increased formation of carbon dioxide.

"Chokes" occurring at high altitude and the development of a state of shock undoubtedly have the same cause (intravascular bubble formation) as similar symptoms following decompression from high pressures.

10. Polak, B., and Adams, B. H.: Traumatic Air Embolism in Submarine Escape Training, U. S. Nav. M. Bull. **30**: 165-177 (April) 1932.

11. Gersh, I.: Pneumothorax and Extrapulmonic Emphysema in Cats Exposed to Oxygen Under Pressure, Research Project X-192, Report No. 5, Naval Medical Research Institute, Oct. 30, 1944.

12. Crowe, S. J., and Baylor, J. W.: The Prevention of Deafness, J. A. M. A. **112**: 585-590 (Feb. 18) 1939.

13. Crowe, S. J., and Burnam, C. F.: Recognition, Treatment and Prevention of Hearing Impairment in Children, Ann. Otol., Rhin. & Laryng. **50**: 15-31 (March) 1941.

14. Fowler, E. P., Jr.: Radon Treatment for Otitis Due to Barotrauma, J. Laryng. & Otol. **58**: 489-492 (Dec.) 1943. Haines, H. L., and Harris, J. D.: Aerotitis Media in Submarines, Interval Report No. 1, Research Project X-434, Medical Research Department, U. S. Submarine Base, New London, Conn. Feb. 18, 1946.

15. Behnke, A. R.: Decompression Sickness Incident to Deep Sea Diving and High Altitude Ascent, Medicine **24**: 381-402 (Dec.) 1945.

Recapitulation of some experimental and empirical data tends to clarify the problem. Dogs, monkeys and cats can be prepared so that bubbles following decompression from high pressure atmospheres are seen to circulate in arteries and veins, until their accumulated size brings about a cessation of blood movement. With the first appearance of bubbles in the blood stream,[15] respiratory rate increases and in the anesthetized dog may develop into a tachypnea of 100 respirations per minute. Blood pressure rises slightly and then falls, and pulse rate decreases (fig. 4). Arterial oxygen saturation may be reduced to one fourth, arterial carbon dioxide content increases and the arterial-venous oxygen saturation difference may be increased fourfold. The picture is that of acute asphyxia, interference with pulmonary gaseous exchange and a slowing of circulation. Varying degrees of hemoconcentration follow, depending on the degree of vascular injury produced by the asphyxia. Recovery follows restoration of circulation by recompression (fig. 4), which removes the obstructing bubbles.

In man "chokes" apparently do not develop until rather large quantities of gas have moved from the peripheral circulation into the large veins, the right side of the heart and the pulmonary vessels. The earliest sign of "chokes" is a sensation of substernal distress, felt only during deep inspiration, which frequently elicits the cough reflex. This sign has proved most useful. Dr. A. C. Ivy [16] has compared this distress with that produced by vigorous exercise prior to the development of "second wind." The sensation of substernal distress may only be transient or it may progress to frank asphyxia. Normal breathing becomes rapid, shallow and then dyspneic. The skin becomes cyanotic or ashen gray, cold and clammy. The pulse beat, at first slow and pounding, becomes thready. Paroxysmal attacks of coughing, or true "chokes," may precede loss of consciousness. The picture is one of "shock" and represents a transformation within a period usually of several hours from a state of health to one of incapacitation by an agent obstructing circulation of blood without evidence of external trauma underlying its cause. Recompression restores blood flow by removal of emboli. The transformation from the shocklike state approaching death to a condition followed by complete recovery is another example of the tremendous recuperative power of man.

The symptomatology of decompression sickness is attributed by some clinicians entirely to extravascular bubbles. This conclusion may be due in part to a faulty interpretation of x-rays; small intravascular bubbles may, as Gersh [17] has shown, appear as streaks along fascial planes. The rapid, shallow breathing (tachypnea) which does not produce substernal distress unless voluntary deep inspirations are made could be ascribed to reflex stimuli initiated by the intermittent distention of gas filled blood vessels in response to the pulmonary pressure changes accompanying respiration. The production of pain by distention of blood vessels, however, has not been demonstrated. Another possible explanation is that interference with blood supply to tissues may be responsible for the pain of "bends" and "chokes." Other hypotheses less well supported relate the cause of pain in "bends" to the presence of gas and a possible dissecting action in nerve sheaths (gas bubbles can form in myelin), in fascial planes and under the insertion of tendons. It is certain that gas can exist in and around fat cells and in joint and tissue spaces even as extensive aeroemphysema without causing pain. Furthermore, there are no pathologic changes in decompression sickness apart from destruction of fat cells that cannot be accounted for on the basis of ischemia and the presence of intravascular bubbles.

16. Ivy, A. C.: Personal communication to the author.
17. Gersh, I.: Correlation of X-Ray and Gross Observations on Gas Bubbles in Guinea Pigs Decompressed from High Pressure Atmospheres, Research Project X-284, Report No. 9, Naval Medical Research Institute, May 9, 1945.

ANOXIA AND RESPIRATION

The development by Cournand and his co-workers [18] of technics to obtain blood from within the chest and even the abdomen of human beings by means of catheters and the pressure measurements possible have given great impetus to the acquisition of quantitative data to settle longstanding controversies in the field of respiration.

Diffusion Respiration.—At high simulated altitudes (47,000 feet) useful consciousness can be maintained for periods of at least three hours by increasing intrapulmonic pressures 8 to 12 inches of water above ambient pressure during an intermittent or continuous

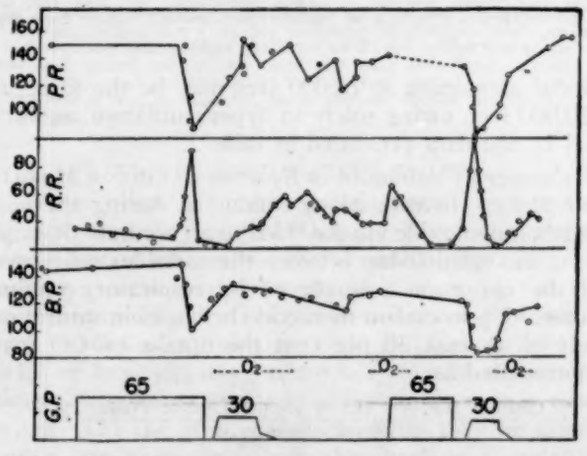

Fig. 4.—Alterations in blood pressure, respiratory rate and pulse rate of a dog decompressed in ten seconds from a gage pressure of 65 pounds after exposure of an hour and a half followed by recompression (interval of ten minutes) to a pressure of 30 pounds (oxygen) for twenty-five minutes. Pressure was then lowered to atmospheric in twelve minutes, and oxygen inhalation continued for seventeen minutes. Preceded by a period of oxygen breathing (thirty minutes), compression of the dog was again carried out at a pressure of 65 pounds for a period of forty-five minutes followed by a ten second decompression. After an interval of twelve minutes the dog was recompressed to a pressure of 30 pounds for twenty minutes (oxygen inhalation).[18]

type of pressure breathing. Pressure breathing, however, involves some degree of hyperventilation with a resultant loss of carbon dioxide. The principle to be emphasized is that if the lungs are filled with pure oxygen diffusion alone will keep the blood oxygenated: respiratory movements are not essential for this purpose. At high oxygen pressures [19] and at atmospheric pressure [20] this principle has been verified. At high altitudes, however, it has not been exploited, particularly under conditions in which undue loss of carbon dioxide was not desirable.

18. Richards, D. W., Jr.; Cournand, A., and Motley, H. L.: The Effects on Circulatory and Respiratory Functions of Various Forms of Resuscitation Apparatus, paper presented before the 59th annual meeting of the Association of American Physicians, May 28, 1946.
19. Behnke, A. R.: Certain Physiological Principles Underlying Resuscitation and Oxygen Therapy, Anesthesiology **2**: 245-260 (May) 1941.
20. Draper, W. B., and Whitehead, R. W.: Diffusion Respiration in Dog Anesthetized by Pentothal Sodium, Anesthesiology **5**: 262-273 (May) 1944.

Pulmonary Ventilation in Relation to Anoxia.—Although increased pulmonary ventilation has long been recognized as the chief compensatory response tending to counteract anoxia when air is inhaled, there has been failure generally to control breathing during the performance of tests and to estimate altitude tolerance.

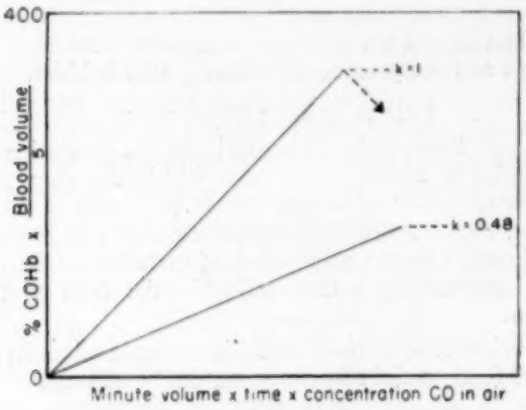

Fig. 5.—Amount of carbon monoxide taken up by the blood plotted against the quantity of carbon monoxide inhaled. The slope of the line is governed by the fraction of carbon monoxide taken out of the inhaled air. This relationship holds for a carboxyhemoglobin saturation of at least 30 per cent (about 400 cc. of carbon monoxide). $k = 0.48$ was the average value for a group of healthy men studied (after Pace and others [21]).

Arterial saturation at 18,000 feet may be the same as at 10,000 feet, owing solely to hyperventilation, as indicated by the data presented in table 2.

Pulmonary Ventilation in Relation to Carbon Monoxide Uptake.—Investigations conducted during the war on carbon monoxide uptake [21] led to an accurate description of the relationship between the variables concerned and the important role played by respiratory minute volume. Up to carbon monoxide hemoglobin saturation levels of at least 30 per cent the uptake of CO may be formulated as

$$\%\ \text{COHb} = \frac{\text{Min. Vol (L)} \times \text{pts CO/1,000} \times \text{t (min.)} \times k}{\frac{\text{Blood volume (cc.)}}{5}}$$

The value of k is of special interest, since it represents the fraction of carbon monoxide removed from each

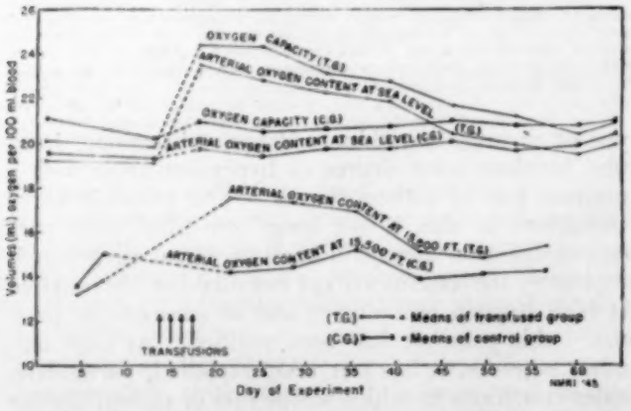
OXYGEN CAPACITY (T.G.)
ARTERIAL OXYGEN CONTENT AT SEA LEVEL (T.G.)
OXYGEN CAPACITY (C.G.)
ARTERIAL OXYGEN CONTENT AT SEA LEVEL (C.G.)
ARTERIAL OXYGEN CONTENT AT 15,500 FT. (T.G.)
ARTERIAL OXYGEN CONTENT AT 15,500 FT. (C.G.)
TRANSFUSIONS
(T.G.) • Means of transfused group
(C.G.) • Means of control group
Volumes (ml.) oxygen per 100 ml blood
Day of Experiment

Fig. 6.—Mean blood oxygen capacity levels and arterial oxygen contents at sea level and at 15,500 feet of 10 men, 5 of whom were transfused with 2,000 cc. of a 50 per cent red cell suspension over a period of four days (transfused group) and the remaining 5 transfused with an identical volume of dextrose in saline solution (control group) over the same period.[22]

breath of air containing carbon monoxide. In graphic form, the slope of the line (fig. 5) is proportional to the value of k. For healthy men this value lies between 0.4 and 0.5. In patients with cardiorespiratory disease it might prove to be of diagnostic value to determine the value of k under conditions in which the carbon monoxide hemoglobin could be kept within safe limits (10 per cent).

Induced Polycythemia to Increase Oxygen Ceiling.—The transfusion of red blood cell suspensions into normal men appears to be the most effective method of attaining artificially the type of physiologic adaptation that takes place during natural acclimatization at high altitudes.[22] The injection of 1,000 cc. of red blood cells over a period of four days increases both oxygen capacity and content of blood (fig. 6). During the polycythemia period, which persisted about six weeks, the pulse rate following exercise when one was breathing low oxygen mixtures (at altitude) was significantly lower than control measurements (fig. 7).

ACCELERATION

Although partial protection of aviators against the effects of acceleration appears to be the chief American aviation medical research development that has contributed to superiority over the enemy, the tremendous speeds made possible by jet propulsion have created the most formidable problem in aviation. The problem resolves itself into maintaining a critical, optimal supply of blood to the brain of about 1 liter per minute under conditions that tend to cause either "blackout"

Table 2.—*Arterial Saturation*

Normal Respiration (Min. Vol. 8-10 L/m)	Arterial Saturation	Hyperventilation * (Min. Vol. 16-20 L/m)
10,000 ft.	90	18,000 ft.
15,000 ft.	80	22,000 ft.
18,000 ft.	70	25,000 ft.

* Continuous experiment, seventy minutes at 18,000 feet, fifteen minutes at 22,000 feet and fifteen minutes at 25,000 feet (Steele, J. M.; King, B. G.; Goldman, D., and Behnke, A. R.: unpublished data, Naval Medical Research Institute, 1945).

(inside loop with pilot in conventional position) by reducing this supply to about one-tenth normal or "redout" (as during an outside loop) by increasing the amount several fold. Thus far, external pressure applied to the abdomen and lower extremities counteracts only one tenth of the g force that the aircraft is capable of withstanding.

The need to alter blood flow under the influence of high g forces by application of pressure over large areas of the body developed from the investigation begun in 1933 by Capt. J. R. Poppen (MC), U.S.N. He demonstrated by experimental flights that a great reduction in blood pressure to the head occurred under the conditions productive of "blackout" in the pioneer naval dive bombing maneuvers.

Poppen established the basic principle of circumventing splanchnic blood pooling during acceleration by means of an abdominal belt, but he was only partially successful because the lower extremities were not included in the pressurized area.

21. Pace, N.; Consolazio, W. V.; White, W. A., Jr., and Behnke, A. R.: Formulation of the Principal Factors Affecting the Rate of Intake of Carbon Monoxide by Man, Am. J. Physiol., to be published.

22. Pace, N.; Consolazio, W. V., and Lorner, E. L.: The Effect of Transfusions of Red Blood Cells on the Hypoxia Tolerance of Normal Men, Science **102**: 589-591 (Dec. 7) 1945. Pace, N.; Lorner, E. L.; Consolazio, W. V.; Pitts, G. C., and Pecora, L. J.: The Increase in Hypoxia Tolerance of Normal Men Accompanying the Polycythemia Induced by Transfusion of Erythrocytes, Project X-524, Report No. 2, Naval Medical Research Institute, May 10, 1946.

The ingenious studies at the Aero Medical Unit of the Mayo Clinic have revealed in a quantitative manner the striking increase in protection by a comparatively small increase in pressurized area in the chest region. During centrifuge runs the degree of added protection provided by immersion in water at the level of the xyphoid was 0.9 g. When the water level was raised to the level of the third rib, the degree of protection was increased to 1.7 g.[23]

In further experiments carried out by Lambert [24] the relationship of retinal ischemia (fall in ocular blood pressure) to "blackout" was demonstrated. Peripheral vision was lost when the effective systolic blood pressure to the eye (systolic pressure at the head level minus intraocular pressure) was reduced to about 20 mm. of mercury. In oxygen poisoning a similar type of functional, rapidly reversible "blackout" (loss of vision without loss of consciousness) occurs in association with derangements in blood pressure and possibly in disturbances of tissue oxidative processes and retinal circulation (fig. 8).

With reference to the development of protective anti-g suits it may be said that even after basic physiologic principles had been clearly established it required a great deal of effort and time (1941 to 1944) to provide a garment acceptable to aviators and effective in aircraft. Only through the close cooperation of army and navy officers, civilian scientists and manufacturers was it possible to incorporate scientific principles in the design and production of practical and acceptable products. The history of the anti-g suit illustrates the huge integrated effort stemming from good administration that is required to put into field operation a protective device based on rather obvious principles.

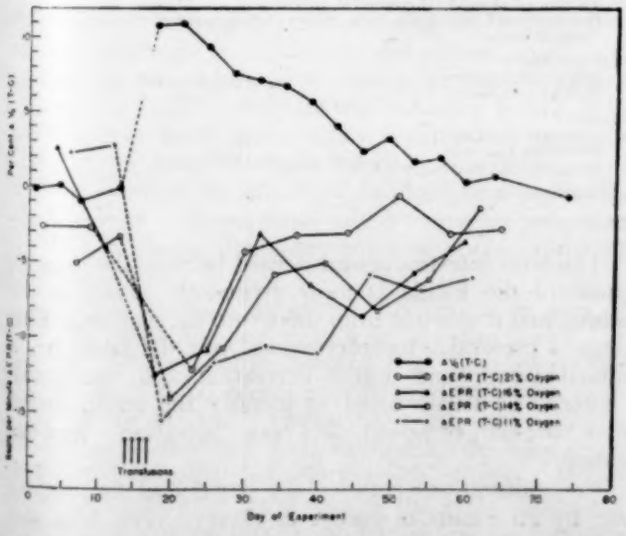

Fig. 7.—Uppermost curve (solid circles) represents the difference (ΔVe) of hematocrit values between the transfused group (T) and the control group (C). The four lower curves represent the difference in exercise pulse rate (Δ E. P. R.) between the transfused groups (T) and the control group (C) while breathing the various mixtures of oxygen and nitrogen. The four transfusions of 500 cc. each are indicated by arrows.[23]

The approach to sonic speeds by means of the principle of jet propulsion and the possibility of human participation in rocket propulsion and its attendant supersonic speeds call for a radical extension of the range of individual protection. Protective measures must be worked out at the time the engineer formulates his plans so that they may be incorporated in the aircraft design.

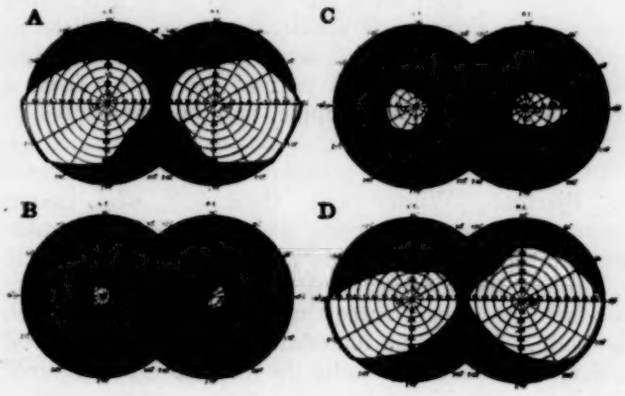

Fig. 8.—Perimetric measurements made before and after three and one-half hours' oxygen breathing at 3 atmospheres pressure (30-pound gage). *A*, normal field limits; determinations made with the Ferree-Rand perimeter and exposure method with 7 foot-candles illumination. *B*, *C* and *D*, field limits five, twenty-five and fifty minutes respectively, after three and one-half hours' oxygen breathing; observations made at atmospheric pressure with a black perimeter of 25 cm. radius illuminated by a blue bulb placed behind and above the observer's head; moving stick stimuli were used and checked by the exposure method; test object was a white disk 6 mm. in diameter (from Behnke, Forbes and Motley, Am. J. Physiol. **114:** 436, 1936).

PROTECTION AGAINST INJURY

Investigation of methods of protecting personnel against crash injury from impact forces constitutes a vitally important part of the research programs of the military services and the Safety Bureau of the Civil Aeronautics Board. The successful accomplishment of such studies is of value not only to aviation but to all fields of locomotion. An aircraft may be almost completely demolished and yet the human body may escape injury. On the other hand, the body may be crushed under conditions in which the fuselage is relatively intact. It also happens that in some crashes one or two of the crew will be killed while the others virtually are unharmed, as the pioneer studies of DeHaven have pointed out.

The resolution of these apparent incongruities may be accomplished by reference to two basic principles long employed by engineers to protect fine instruments against tremendous explosive forces transmitted through the steel hulls and decks of ships ("solid blast" [25]). The first is to eliminate injurious transient peak forces developed in impacts by dissipating the energy over a longer period of time. The second principle, closely integrated with the first, is to provide protective materials capable of absorbing, without recoil, part of the energy imparted by impact forces.

The type of protection devised to mitigate "solid blast" injury illustrates the first principle. Thus, if a metal loop is placed in the heel of a shoe, the compression of this loop through a distance of 1 inch may be sufficient to absorb the energy of peak acceleration and lower the impact force on the body itself to a level below the limit of tissue tolerance Tests of some of these materials can be made under conditions of

23. Code, C. F.; Wood, E. H., and Baldes, E. J.: Hydrostatic Anti-Blackout Protection, Federation Proc. **4:** 15 (March) 1945.

24. Lambert, E. H.: The Physiologic Basis of "Blackout" as It Occurs in Aviators, Federation Proc. **4:** 43 (March) 1945.

25. Barr, J. S.; Draeger, R. H., and Sager, W. W.: Solid Blast Personnel Injury, Mil. Surgeon **98:** 1-12 (Jan.) 1946.

static loading, although their response may not be the same under dynamic loading conditions. If a compression load of 1,000 pounds is necessary to break the tibia, for example, the protective material used must undergo deformation under a lesser static load in order to be effective.

The body does not react as a rigid mass when subjected to impact force but behaves as an articulated system containing such shock absorbing materials as intervertebral disks, which serve to absorb the energy of impacts. Only a small part of the energy from a blow on the heels, for example, may be transmitted to the base of the skull.

In aviation the second protective principle was utilized by Bierman, Wilder and Hellems,[26] who, using undrawn nylon and covering wider and less vulnerable areas of the body in a body harness designed ultimately to protect the aviator, were able to reduce to about one-fifth the impact force that otherwise would reach the body. This nylon material stretches without recoil under draw loads well under the minimal force required to produce significant tissue injury.

Intensive studies to determine the limit of trauma to vulnerable parts of the body, the employment of protective material to absorb part of the energy of impact forces, the further elimination by "streamlined" construction of sharp corners and edges and even the incorporation of energy absorbing materials in compartment and cockpit construction give the greatest promise of reducing the high injury and mortality rates attending crashes arising from all types of mechanical locomotion. Whether, for example, safety belts will be worn in automobiles depends on the character of American temperament. Their protective value, however, is certain.

PREVENTION OF ACCIDENTS

In aviation, as in medicine, remedies are at best expedients; the principal objective always will be preventive measures by elimination of injurious factors. Perhaps the most recent achievement in aviation medicine is the fostering of the realization that the effectiveness of the machine depends on the degree to which it is designed to take advantage of the capabilities of man. Human factors have come to play a significant role in aircraft design; the expression "physiologic cockpit" (DuBois) is generally accepted. The doctors of medicine, the doctors of philosophy and other aeromedical personnel are beginning to plan their investigations with engineers at the drawing board and test their findings in experimental aircraft.

As the knowledge of the human structure, physiology and psychology is increased we shall be able to describe man adequately and list his specifications in such a way that training methods and engineering design will permit maximal exploitation of his abilities. To paraphrase a succinct statement by Lieut. Comdr. M. C. Shelesnyak, H(S), U.S.N.R., the problems of yesterday were "fitting the man into the plane"; the solution to today's problem, that of insuring the maximal effectiveness of pilot performance with the maximal degree of safety, lies in "fitting the plane around the man."

26. Bierman, H. R.; Wilder, R. M., Jr., and Hellems, H. K.: The Principles of Protection of the Human Body as Applied in a Restraining Harness for Aircraft Pilots, based on Project X-630, Report No. 6, Naval Medical Research Institute.

INTESTINOVESICAL FISTULA

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and
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The presenting symptoms of intestinovesical fistula are nearly always those of irritation of the bladder. The urologist is therefore consulted in order to assure a correct diagnosis. It happens too often, however, that the cause of the so-called cystitis is not discovered, for the fistulous tract is not easily demonstrated and the condition is so rare that it may not be considered at the time a differential diagnosis is being made. For this reason, it is apropos occasionally to review the subject and report a series of cases.

TABLE 1.—*Age and Sex*

Age, Yr.	No. of Cases
0 to 9	1 (9 mo.)
10 to 19	2
20 to 29	2
30 to 39	2
40 to 49	2
50 to 59	13
60t o 69	6
70 to 79	4
Male	22
Female	9

TABLE 2.—*Etiology*

	Cases	
	No.	%
Inflammatory conditions		
Diverticulitis of bowel	15	50
Appendical or pelvic abscess	2	7
Terminal ileitis	1	3
Congenital		
Failure of closure of urorectal septum	1	3
Diverticulosis of colon (see under inflammatory conditions)		
New growths		
Intestinal neoplasms	7	25
Vesical neoplasms	3	9
Trauma		
External trauma	1	3
Operative trauma	None in this series	
Roentgen ray and radium		
Unknown causation	4	

The term intestinovesical is used because the primary cause of the fistula is more frequently found in the bowel, and it extends from there into the bladder. This term is preferable to enterovesical, for the latter has a mixed Greek and Latin derivation and the prefix "entero" is usually used to identify the small, rather than the large, bowel, whereas "intestino" signifies either.

Communications between the bowel and the bladder are by no means of recent discovery. The first case found in the literature occurred in the second century. Recent medical literature contains the report of several series of cases. Pascal [1] in 1900 collected 292 cases; since that time Kellogg [2] summarized 592; Higgins [3]

From the Departments of Urology and Proctology, College of Medical Evangelists.

Read before the Section on Urology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

1. Pascal, A.: Des fistules vésico-intestinales acquises chez l'homme et la femme, Thesis, Paris, No. 178, 1900.
2. Kellogg, W. A.: Vesico-Intestinal Fistula, Am. J. Surg. 41: 135-186 (July) 1938.
3. Higgins, C. C.: Vesico-Intestinal Fistula, J. Urol. 36: 694-706 (Dec.) 1936.

and Peters [4] reported 40 and 21 respectively and summarized previously reported series. Pemberton [5] described 4 cases of vesicoappendical fistula, and Barnes and Hill [6] reported a series and emphasized the importance of making a correct diagnosis.

The cases reported in this communication include the 14 previously recorded by us and 17 additional ones. Incidence is about 1 in 600 patients with urologic disease. The condition is about twice as common in males as in females (table 1) and is most frequent in the sixth and seventh decades.

The commonest cause of intestinovesical fistula is diverticulitis of the bowel, and it accounts for 50 per cent of our series (table 2). An infected diverticulum situated near the bladder becomes abscessed, breaks into the bladder and produces a fistulous tract between the two cavities. Carcinoma of the rectosigmoid was encountered in 25 per cent of our cases; causes are enumerated in table 2.

The importance of making an accurate diagnosis of intestinovesical fistula is emphasized, for the condition may be easily overlooked and many patients suffer from severe intractable cystitis for months before the cause is discovered. If a careful history reveals that the patient passes gas from the bladder, the diagnosis is

TABLE 3.—*Symptoms*

	Cases	
	No.	%
Pneumaturia	27	90
Frequency and burning	21	70
Feces in urine	7	23
Fever	6	20
Suprapubic pain	5	16
Pain in rectum	3	10
Urine in stool	3	10

almost certain. Seldom is this information volunteered, and the interrogator should ask the patient specifically whether he passes gas from the bladder at the end of voiding. An affirmative answer indicates to the physician that he is almost certainly dealing with a patient who has an intestinovesical fistula. Ninety per cent of those in our series presented this symptom (table 3). The majority had frequency and burning on urination as well; however, this symptom was not so constant as pneumaturia.

The most constant cystoscopic findings is an area of acute inflammation and edema in the fundus of the bladder. This is usually situated 2 or 3 cm. above the trigone; there is no edema and little inflammation elsewhere in the bladder. Occasionally the orifice of the fistula can be identified in the center of the edematous area, but it is usually obscured by the edema. When the fistula is of long standing and the acute phase has entirely disappeared, there is no edema and the fistulous orifice can be identified in a chronically inflamed bladder mucosa. There are several other diagnostic procedures which may be employed (table 4); however, none of them are reliable. Occasionally, a radiopaque solution injected into the bladder extends through the fistula and enters the colon; this occurred in only 3 out of 15 cases in which cystograms were taken. During proctoscopic examination, the appearance in the bowel of methylthionine chloride injected into the bladder or its presence in the bladder after injection into the rectum is such an irregular finding that these diagnostic methods are seldom of value. The roentgenologic finding of diverticulosis of the colon or the proctoscopic discovery of multiple diverticular orifices in the bowel, of a neoplasm in the rectosigmoid or of a localized area of edema of the intestinal mucosa is of some aid in arriving at a diagnosis. Carcinoma situated in the lower 10 inches (25 cm.) of the large bowel is more accurately diagnosed by proctoscopic examination than by barium enema, for frequently only the larger neoplasms are demonstrated by a filling defect in the roentgenogram.

TABLE 4.—*Diagnosis*

Examination	Cases	
	No.	%
Cystoscopy (26 cases)		
Area of edema in fundus	21	81
Fistulous opening visualized	6	23
Cystogram (15 cases)		
Fistula demonstrated	3	20
Fistula not demonstrated	12	80
Barium enema (17 cases)		
Fistula demonstrated	1	6
Fistula not demonstrated	16	94
Dye into bladder (6 cases)		
Fistula demonstrated	1	17
Fistula not demonstrated	5	83
Dye into rectum (4 cases)		
Fistula demonstrated	1	25
Fistula not demonstrated	3	75

The treatment of intestinovesical fistula is a separate problem in each individual case. If the patient's general condition is good and the fistula is a result of diverticulitis, a one stage repair is usually successful; if excessive inflammatory reaction and induration are present, a two stage operation is indicated. Of the 9 patients in this series on whom one stage repair was performed, 4 either suffered a recurrence or presented a second fistulous tract, which had not been recognized at the time of operation (table 5). Two of these underwent a subsequent two stage intervention. When it is difficult to complete the repair at the first operation, either a preliminary colostomy is done and the fistulous tract obliterated at the second operation or the two procedures are performed at the same sitting and the colostomy left open until the inflammatory induration has subsided and the bladder and bowel have entirely healed.

TABLE 5.—*Treatment and Results*

	No. of Cases	
One stage repair of fistula	9	
Recurrence of fistula		4
Two stage repair (includes 2 reoperations from one stage repair)		
Colostomy either before or at time of repair	6	
Recurrence of fistula (3 still have colostomy)		0
Palliative surgical treatment	5	
No treatment		
Refused	7	
Condition too poor	3	
Probable spontaneous recovery	3	

4. Peters, H. Jr.: Vesico-Intestinal Fistulas, Review of Literature, Including Twenty-One Cases of the University Hospital, Internat. Abstr. Surg. **69**: 582-588, 1939; in Surg., Gynec. & Obst., December 1939.
5. Pemberton, J. de J.; Pool, T. L., and Miller, J. M.: Vesico-Appendiceal Fistulas, J. Urol. **44**: 274-278 (Sept.) 1940.
6. Barnes, R. W., and Hill, M. R.: Intestino-Vesical Fistula, California & West. Med. **56**: 350-354 (June) 1942.

Most patients who present carcinoma of the lower part of the bowel which has caused formation of an intestinovesical fistula present too poor risks for radical operation, or the neoplasm is so extensive that it is inoperable and therefore only palliative colostomy is indicated. A notable exception is a case in this series, that of M. C., a white man aged 49, first seen in October 1935. A carcinoma of the rectosigmoid had necrosed through the bladder, creating a fistula. A one stage abdominoperineal resection of the rectum was done, a portion of the posterior part of the bladder wall removed and the left ureter transplanted into the fundus of the bladder. The patient had a somewhat stormy convalescence but is still living and shows no evidence of recurrence of the tumor nearly eleven years after operation.

It is often necessary in the treatment of intestinovesical fistula for colostomy to be maintained for several years and sometimes permanently. When colostomy is properly performed and the patient is taught how to care for it adequately, he is able to live a normal life. There is no odor or other evidence of his condition.

SUMMARY

Intestinovesical fistula, although not common, occurs often enough to require the physician to keep it in mind when making a differential diagnosis of the cause of cystitis. The two characteristic, almost diagnostic, criteria which lead to the discovery of the condition are pneumaturia and the cystoscopic appearance of a localized area of acute inflammation and edema in the fundus of the bladder. Other diagnostic procedures are useful when findings are indicative of the condition but are usually of little value. The curative surgical treatment of choice is two stage repair of the fistula by means of preliminary colostomy or colostomy at the time of repair. A summary of 31 cases is given. There were no recurrences in 6 cases in which the patients were treated by two stage repair.

1216 Wilshire Boulevard.

ABSTRACT OF DISCUSSION

Dr. John H. Morrissey, New York: In his series and tabulations, 1 in 600 cases of urologic disease is by no means a small incidence, the gravity of the condition being considered. The original contribution to this subject, that of Harrison Cripps, of London, in 1868, entitled "The Passage of Air and Feces from the Human Bladder," laid down basic principles of causation and diagnosis that are fundamentally unchanged today. Then, as today, diverticulitis of the colon was noted as the principal cause and, secondly, rectosigmoidal carcinoma. The passage of air—pneumaturia—or fecal matter through the urethra, associated with intractable cystitis, was the presenting symptom that brought the patient to the surgeon. In 1931, at the Detroit meeting of this section, I reported a series of 47 cases together with Dr. J. M. Lynch, of New York. It was my opinion then, and still is, that a two stage operation is the only procedure for the treatment of the condition—a preliminary colostomy, with adequate period of drainage and subsequent excision of the fistulous tract—regardless of the fact as to whether the bladder opening may have closed in the interval. If not excised, it will inevitably recur. Dr. Barnes's results would indicate that this is still the preferable method of surgical treatment. Another observation worthy of attention is the increased incidence of these fistulas in males. Cripps called attention to a similar disproportion of the sexes in his series of 38 cases, in only 6 of which the patients were women. This leads me to conclude that this complication, which, after all, is basically inflammatory in character, is in a measure connected with or associated with some anatomic structure peculiar to males. Similar conclusions have been reached by Sutton, Rankin and Judd, at Rochester, and Leon Herman and Baird Stuart, in Philadelphia. In my opinion, these structures are the prostate and, particularly, the postprostatic space. It is through this last area that the fistulous tract generally extends. Therefore, we should especially have this in mind in a study of unexplained cystitis in the male patient. The use of sulfonamide drugs and penicillin has changed the entire picture not only in the early treatment of these fistulas but in their incidence. The diagnosis of diverticulitis is today most frequently made and verified by roentgenologic examination as a clinical entity.

Dr. Robert A. Scarborough, San Francisco: The essayists have clearly demonstrated the difficulties of establishing a diagnosis of intestinovesical fistula. Information relative to the occurrence of pneumaturia is seldom volunteered by the patient, and the presence of feces in the urine was a symptom in less than 25 per cent of their cases. Frequency and burning would appear to be the dominant complaints. The difficulties of demonstrating the presence of a fistula are shown by the fact that this was possible in only 6 cases by cystoscopy, in 3 by cystogram, in 1 by barium enema, in 1 by instillation of dye into the bladder and in 1 by instillation of dye into the rectum. The authors have found that 50 per cent of their cases originated with diverticulitis of the bowel. This is consistent with the reports of Kellogg, of Higgins and of Ewell and Jackson. Their description of the rupture into the bladder of an abscess secondary to inflammation of a diverticulum suggests a fairly acute process. However, Mayo and Miller have called attention to the fact that, as a rule, onset of the development of a fistula is gradual, with burning and frequency finally developing after repeated attacks of moderate pain in the left lower quadrant. In several of their patients, symptoms referable to the bladder developed without any antecedent abdominal or intestinal symptoms. Pelvic inflammatory disease and surgical trauma are major causative agents which are notably lacking in the series of cases reported today. An unusual instance of traumatic origin recently encountered by Dr. James Dillon, professor of urology at Stanford University School of Medicine, was that resulting from the treatment of an inguinal hernia by injection. This resulted in an ileovesical fistula, due to the subsequent necrosis. The mortality rate from surgical intervention is usually high, with peritonitis the commonest cause of death. The authors, however, have had no deaths in 15 cases of fistula surgically corrected. In 9 cases the authors found a single stage operation feasible. However, there was a recurrence of fistula in 4 of these. In the 6 cases with colostomy before or at the time of repair, there have been no recurrences. This experience supports my own conviction that preliminary double-barreled colostomy, so constructed as to divert completely the fecal stream, is always advisable. This procedure simplifies the problem of dissection and repair by diminishing the local inflammatory reaction, decreases the risk of peritonitis and minimizes the possibility of recurrence of the fistula.

Dr. Grayson L. Carroll, St. Louis: I should like to call your attention to the method my associates and I used successfully in 2 cases of vesicointestinal fistula. Both were caused by the rupture of a diverticulitis into the bladder and were small. One caused gas to be passed through the urethra and the other gas plus feces. Methylthionine chloride injected in the rectum appeared in the urine. An electrode was passed by means of the cystoscope into the fistulous tract and the mucous membrane lining fulgurated away. The urethral catheter was retained in the bladder for a week. In each of these cases, we anticipated a major operation and were well pleased to have them close in this simple manner. Succinylsulfathiazole, 1 Gm. daily, and sulfathiazole, 15 grains (0.9 Gm.) every four hours, were administered during the period of hospitalization.

Dr. Roger W. Barnes, Los Angeles: We have not used fulguration of the vesical orifice of the fistula in any of these cases. We tried it a few times in vesical-vaginal fistula but without much success. It is interesting to hear Dr. Carroll's results in using this simple treatment.

ANATOMIC CONSIDERATIONS OF GASTRIC NEURECTOMY

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JOHN T. SMALL, M.D.
JAMES W. WILSON, M.D.
Fellows in Surgery, Mayo Foundation
and
WALTMAN WALTERS, M.D.
Rochester, Minn.

At the February meeting of the Central Surgical Association, one of us (Walters) discussed with Dr. Edwin Miller of Chicago the problem of division of the vagus nerves in treatment of gastric and duodenal ulcers. Dr. Miller said that from dissection of approximately thirty vagus nerves he had been astonished to find great variation of distribution of these nerves in the vicinity of the diaphragm. He expressed the belief that the patterns of distribution should be assembled in groups with the idea of determining whether or not all the gastric branches of the vagus nerves or the gastric

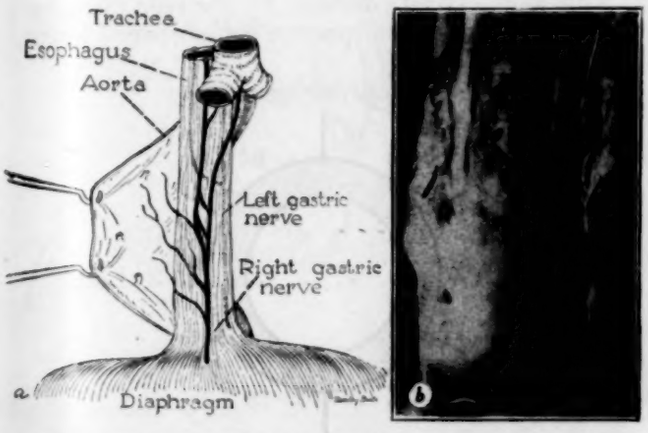

Fig. 1 *a* and *b*.—Formation of right gastric nerves from branches of the pulmonary plexus behind the trachea and sympathetic branches posteriorly. Example of group 1.

nerves could be removed successfully by transabdominal approach. He suggested that we at the Mayo Clinic might collaborate in such a study. The possibility of carrying out the study was discussed with Dr. J. W. Kernohan of the Section on Pathologic Anatomy and the work was begun with a survey of the literature, only a little of which will be recounted here, and the dissection of vagus nerves in more than a hundred cases at postmortem examination.

Denervation of the stomach is not a new concept in the treatment of peptic ulcer,[1] and an extensive and confusing literature has appeared since Brodie's[2] first report in 1814. A review of the literature revealed that in many instances the early and late effects of denervation have been confused,[3] and the results of section of the gastric nerves[4] of man have been compared indiscriminately with those obtained on lower animals.[5] The extent of the operation has varied in the hands of different workers, and the fact must not be overlooked that many workers have employed it in the experimental production of peptic ulcer.[5a] That

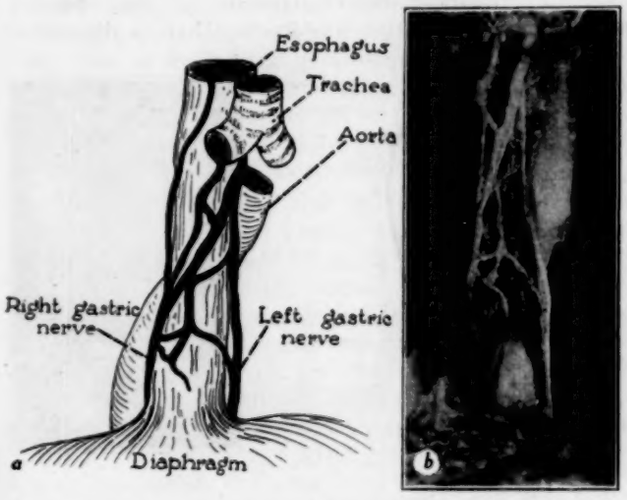

Fig. 2 *a* and *b*.—Formation of gastric nerves from the esophageal plexus (group 2).

there is no agreement on even the morphology of the structures of these nerves, let alone their function, is reflected in recent reports in which one author[6] concluded that the vagus nerve is composed of nothing but sympathetic fibers, whereas two other investigators[7] denied the presence of sympathetic fibers entirely. In

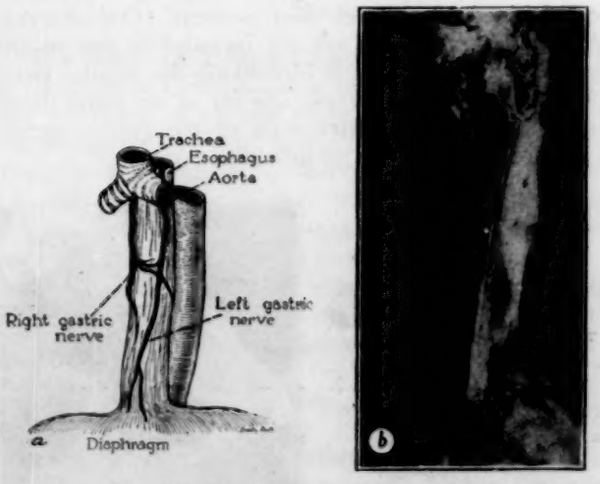

Fig. 3 *a* and *b*.—Formation of gastric nerves, demonstrating the absence of intercommunicating branches between the esophageal hiatus and 6 cm. above the diaphragm (group 3).

that the present study is morphologic rather than physiologic we are concerned chiefly with clarification of the distribution of the gastric nerves[8] immediately

From the Division of Surgery (Dr. Walters), the Mayo Clinic.
Work done in the Section on Pathologic Anatomy under the direction of Dr. J. W. Kernohan.

1. Latarjet, A.: Resection des nerfs de l'estomac: Technique opératoire; Résultats cliniques, Bull. Acad. de méd., Paris **87**: 681-691, 1922; Note préliminaire sur l'innervation et l'énervation de l'estomac, Lyon méd. **130**: 166-167, 1921.

2. Brodie, B., cited by Hartzell, J. B.: The Effect of Section of the Vagus Nerves on Gastric Acidity, Am. J. Physiol. **91**: 161-171 (Dec.) 1929.

3. Dragstedt, L. R., and Schafer, P. W.: Gastroduodenal Ulcer, Surgery **17**: 742-749 (May) 1945. Dragstedt, L. R.: Vagotomy for Gastroduodenal Ulcer, Ann. Surg. **122**: 973-989 (Dec.) 1945. Thornton, T. F., Jr.; Storer, E. H., and Dragstedt, L. R.: Supradiaphragmatic Section of the Vagus Nerves: Effect on Gastric Secretion and Motility in Patients with Peptic Ulcer, J. A. M. A. **130**: 764-769 (March 23) 1946.

4. According to Cunningham's textbook on anatomy (Waterston, David: Digestive System, in Cunningham, D. J.: Text-Book of Anatomy, ed. 7, edited by J. C. Brash and E. B. Jamieson, New York, Oxford University Press, 1937, p. 567) the vagus nerves which pass from the esophageal plexus downward on the front and back of the esophagus through the opening in the diaphragm are termed anterior and posterior gastric nerves, respectively. In our investigations the right nerve was not always posterior or the left nerve anterior to the esophagus as it passed through the esophageal hiatus and we proposed the term right gastric nerve and left gastric nerve. As any surgical procedure which would delete a section of a nerve would be known as neurectomy, when the gastric nerves are resected the procedure would be known as "gastric neurectomy."

(Footnotes 5, 6, 7 and 8 on next page)

above and below the esophageal hiatus of the diaphragm. Previous investigators have shown that each gastric nerve is composed of fibers from both vagi as well as sympathetic nerves.[9]

MATERIAL STUDIED

Anatomic consideration of the nervous structures from the cardiopulmonary plexus to the stomach revealed great variation in pattern, whereas the nerves

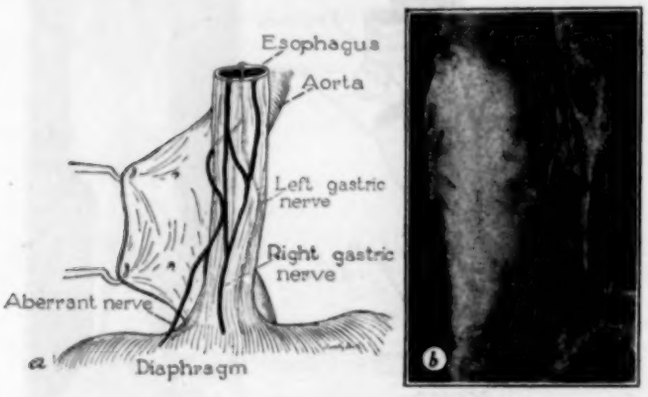

Fig. 4 *a* and *b*.—Right gastric nerve with aberrant nerve coursing laterally into thorax (group 4).

are remarkably constant in course and distribution after reaching the stomach. In dissection in more than 100 cases at necropsy we have concentrated, therefore, on the region above the stomach in order to evaluate the thoracic and abdominal approaches to the lower part of the esophagus.

In addition to the 100 adults already mentioned in whom the anatomy of the gastric nerves was studied, we examined 11 children post mortem. Our observations in these 11 cases are not included in our results because of the difficulty in identifying the smaller twigs and branches of the nerves. As far as we could determine, however, the distribution of the gastric nerves in children is the same as in adults.

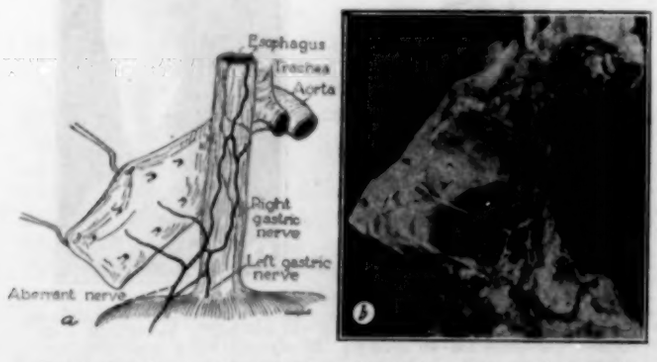

Fig. 5 *a* and *b*.—Another example of distribution of nerves (group 4).

Our observations were made on 56 men and 44 women.

Generally speaking, the gastric nerves arose from the esophageal plexus at about the level of the bifurcation of the trachea. The right and left nerves coursed caudad and usually ultimately terminated on the stomach. There were, however, certain variations that led us to separate our cases into four groups.

RESULTS

In 92 of our cases the gastric nerves took origin from the esophageal plexus. In 85 of our cases this occurred on the anterior wall of the esophagus behind the bifurcation of the trachea and behind the main bronchi. In 7 of our cases this occurred at the level of the lower part of the esophagus. As the gastric nerves coursed caudad many intercommunicating branches were observed between the right and the left trunks. Additional fibers were added to the gastric nerves by small fibers that coursed anteriorly and inferiorly over the vertebral column and the aorta. Communicating branches were sometimes seen to enter the musculature of the esophagus and either lose their identity or reemerge onto the surface of the esophagus at some more caudad position. By the time the nerve trunks and branches had reached the esophageal hiatus

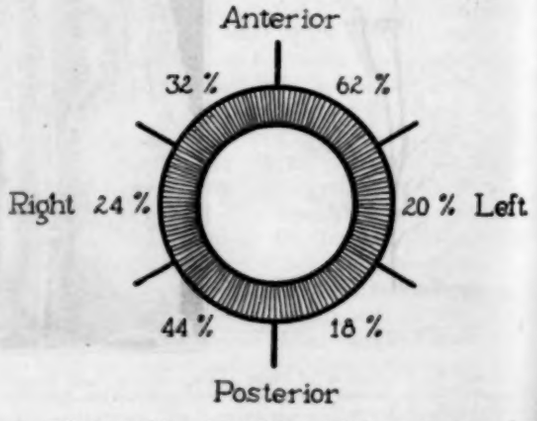

Fig. 6.—Relative position of the right and left gastric nerves about the esophagus at the level of the esophageal hiatus.

two relatively large trunks were formed. These trunks passed through the esophageal hiatus, below which their course was remarkably constant.

The 92 cases constitute three of our groups. In the first group all the branches between the gastric nerves and from more remote regions joined in common trunks, one on the right and one on the left side of the esophagus, somewhere between the esophageal hiatus and

5. Ochsner, Alton, and DeBakey, Michael: Surgical Considerations of Achalasia: Review of Literature and Report of 3 Cases, Arch. Surg. **41**: 1146-1183 (Nov.) 1940. Ferguson, J. H.: Effects of Vagotomy on the Gastric Functions of Monkeys, Surg. Gynec. & Obst. **62**: 689-700 (April) 1936. Knight, G. C., and Adamson, W. A. D.: Achalasia of the Cardia, Proc. Roy. Soc. Med. **28**: 891-897 (May) 1935. Watanabe, Tamotsu: Zur pathologischen Physiologie der motorischen Funktion des Magens: Einfluss von Lähmung und Reizung einzelner und mehrerer Komponenten des vegetativen Nervensystems auf Tonus und Peristaltik, Virchows Arch. f. path. Anat. **251**: 494-532, 1924. McCrea, E. D.: The Nerves of the Stomach and Their Relation to Surgery, Brit. J. Surg. **13**: 621-648 (April) 1926. Koennecke, Walter, and Meyer, Herm: Röntgenuntersuchungen über den Einfluss von Vagus und Sympathicus auf Magen und Darm. Mitt. a. d. Grenzgeb. d. Med. u. Chir. **35**: 297-323, 1922. Thornton, Storer and Dragstedt.[8]

(Footnote 5 continued in next column)

5a. Beaver, M. G., and Mann., F. C.: The Production of Peptic Ulcer After Section of the Gastric Nerve, Ann. Surg. **94**: 1116-1118 (Dec.) 1931. Beazell, J. M., and Ivy, A. C.: Chronic Gastric Ulcer Following Bilateral Vagotomy in the Rabbit and the Dog, Arch. Path. **22**: 213-219 (Aug.) 1936. Greggio, Ettore: Des ulcères gastro-duodénaux, Arch. de méd. expér. et d'anat. path. **27**: 533-590, 1917. Durante, Luigi: The Trophic Element in the Origin of Gastric Ulcer, Surg., Gynec. & Obst. **22**: 399-406 (April) 1916. Lium, Rolf: Peptic Ulcer and Diarrhea Following the Removal of the Prevertebral Ganglia in Dogs: The Antispasmodic Effects of Magnesium Sulfate, Pentobarbital and Atropine Sulfate, Surgery **9**: 538-553 (April) 1941.

6. Kiss, F.: The Relationship Between Vagus and Sympathetic in the Vertebrates, J. Anat. **66**: 153-156 (Oct.) 1931.

7. McSwiney, B. A., and Spurrell, W. R.: The Gastric Fibres of the Vagus Nerve, J. Physiol. **77**: 447-458 (March 15) 1933.

8. Durward, A.: Peripheral Nervous System, in Cunningham, D. J.: Text-Book of Anatomy, ed. 8, edited by J. C. Brash and E. B. Jamieson, New York, Oxford University Press, 1943, p. 1099.

9. McCrea, E. D.: The Abdominal Distribution of the Vagus, J. Anat. **59**: 18-40 (Oct.) 1924.

6 cm. above the diaphragm (fig. 1 *a* and *b*). There were 64 such cases.

In the second group there were so many intercommunicating branches between the main trunks of the gastric nerves that a plexus was formed over a major portion of the surface of the esophagus. The branches ultimately united and formed two main trunks at the esophageal hiatus (fig. 2 *a* and *b*). There were 7 such cases.

The third group was characterized by the long discrete trunks without any additions to their fibers or communicating branches for a distance of 6 cm. above the diaphragm (fig. 3 *a* and *b*). There were 21 cases of this sort.

The fourth group was made up of the remaining 8 cases. The nerves did not have a consistent or uniform course or pattern. In some instances well formed trunks were present, but somewhere near the diaphragm a well defined branch would leave the main trunk and

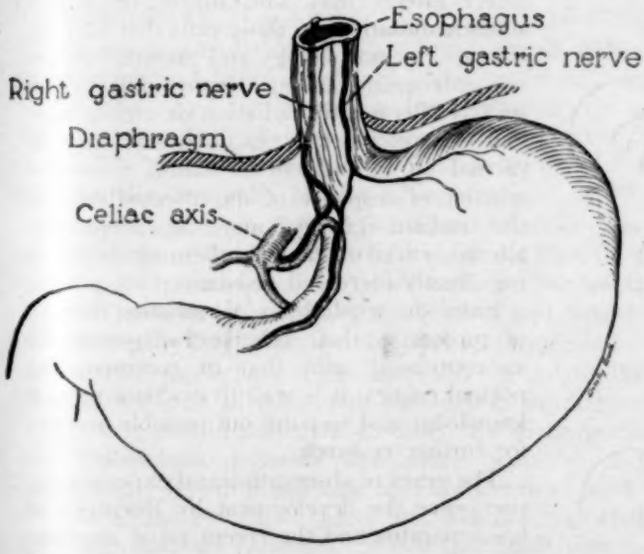

Fig. 7.—General distribution of the right and left gastric nerves below the diaphragm.

course laterally in the thorax and lose its identity before leaving the thorax (fig. 4 *a* and *b*). In other cases the numerous branches of the esophageal plexus failed to form into common trunks on one or both sides of the esophagus (fig. 5 *a* and *b*). In such a case the multiple small fibers followed their course along the esophagus; some went through the esophageal hiatus, some ran laterally in the thorax. In such cases as these we were never quite certain of the distribution of every fiber of the right and left gastric nerves. Hence in cases of this type it might become difficult for the surgeon to section all the gastric nerves.

As the trunks passed through the esophageal hiatus we noted the relative position of the right and the left trunks about the esophagus (fig. 6).

Below the esophageal hiatus the course was remarkably constant (fig. 7). The right gastric nerve, the larger in 54 cases, coursed posteriorly and to the left. After about 3 to 5 cm. this right gastric nerve divided into numerous branches. One of these branches followed the lesser curvature of the stomach as far as the incisura, and another large branch followed the left gastric artery. Our routine dissections did not carry us beyond the division of the right gastric nerve into these branches.

The left nerve, on the other hand, had a short course in the abdomen. As the left gastric nerve came to lie on the anterior surface of the stomach, it almost immediately divided into numerous small branches which lost their identity in the serosa and musculature of the stomach. A branch known as the anterior nerve of the lesser curvature was consistently present behind the anterior leaf of the gastrohepatic omentum. Occasionally a small communicating branch between the right and the left gastric nerves could be identified at the esophageal hiatus.

COMMENT

This work suggests that in slightly more than 90 per cent of cases a transabdominal subdiaphragmatic surgical approach will allow of as nearly a complete division of all the gastric nerves as will a transthoracic approach. In somewhat less than 10 per cent of cases the pattern of the nerves is not uniform. In some cases numerous branches of the esophageal plexus fail to form into common trunks on one or both sides of the esophagus. In such cases the surgeon would encounter difficulty in sectioning all the gastric nerves.

AN ANATOMIC STUDY OF THE VAGUS NERVES

Influence on Choice of Surgical Approach in Patients with Chronic Peptic Ulcer

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and
CARL B. DAVIS Jr., M.D.
Chicago

The work of Dragstedt and his associates at the University of Chicago has aroused universal interest in the treatment of chronic peptic ulcer by section of the vagus nerves. Even though the elapsed time since their first operation has been only about three and one-half years, the clinical results in their series of approximately 80 cases has clearly demonstrated the value of this procedure.

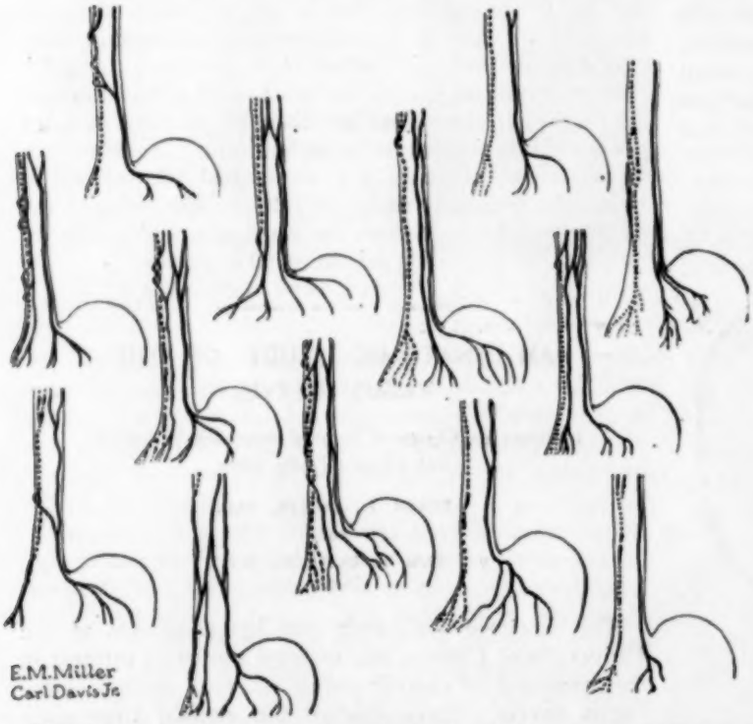
We have shared the interest of many others in this work, but we were not willing to proceed with this operation before we had investigated the likelihood of anomalous distribution of the vagus nerves along the lower portion of the esophagus, the idea being that unless all the branches are divided the results of the operation might be disappointing.

We have therefore gone into the autopsy room at the Presbyterian Hospital and through the cooperation of the pathologists been permitted to make dissections of the vagus nerves below the level of the pulmonary plexus in a series of 13 fresh bodies. The textbooks of anatomy state that normally these nerves after leaving the pulmonary plexus continue as a plexus about the esophagus, from which they proceed downward as two main trunks for a distance of 4 to 6 inches, the right becoming the posterior and the left the anterior trunk as they pass through the hiatus of the diaphragm and fan out on the walls of the stomach.

From the Department of Surgery, Presbyterian Hospital, and the University of Illinois College of Medicine.

The results of our studies have brought to light some interesting facts, as may be seen in the accompanying drawings. It will be noted that in only 3 instances was the arrangement comparable to that described in the anatomies as "normal," and in the remaining 10 bodies there was considerable variation in the number of main trunks and accessory branches.

In view of these findings we are of the opinion that in the abdominal approach with relatively poor exposure it would be a simple matter to leave undivided one or more of these branches, whereas with the transthoracic (supradiaphragmatic) approach on the left side with very careful elevation of the esophagus from its bed without bleeding (after division of the inferior pulmonary ligament) one has a clear view of this area and can more accurately make a careful dissection. We therefore strongly favor the supradiaphragmatic approach for division of the vagus nerves.



Dissection of 13 specimens at autopsy, showing the variations in the distribution of the vagus nerves. The posterior or right vagus nerve branches are shown by dotted lines, the anterior or left branches by continuous block lines. In only three dissections were conditions comparable to the so-called "normal."

55 East Washington Street.

The Government's Research Program.—The Research and Development program of the federal government is as large as, and in many fields larger than, during the war. Current expenditures on research and development, which are at about twenty times the 1940 level, will approximate 1½ billion dollars during the year from July 1946 to July 1947, excluding expenditures on the Manhattan Project. This means not only that the federal government is conducting or financing a very large share of the total research and development now undertaken in the country but that federal policies with respect to research affect every industrial laboratory, university and individual scientist. . . . Expenditures on research related to human welfare are large in absolute terms but small in relation to all federal research and development expenditures. The Public Health Service has a budget of $11,000,000, the Department of Agriculture $37,000,000 and the Bureau of Standards $9,000,000.—Kidd, Charles V.: The Federal Government and the Shortage of Scientific Personnel, *Science*, Jan. 24, 1947.

MECHANISM OF RADIATION EFFECTS AGAINST MALIGNANT TUMORS

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Boston

One of the important ways of influencing growth, both normal and abnormal, is radiation. Whether applied deliberately, as for therapy of a tumor or the production, by Müller and others, of genetic effects through induced mutation or accidentally, as when epiphyseal growth of bone is arrested as a result of treating an adjacent osseous tumor, the effects of radiant energy are vividly apparent.

Whether used to end a war, as at Hiroshima and Nagasaki, or to cure a basal cell cancer of the skin, ionizing radiations act on organisms through direct production of intrinsic changes in exposed cells and through changes in the environment of the cells. The direct effects may kill, injure or induce somatic mutations in those cells that survive. Changes in morphology and growth rate are not infrequent among tumor cells which survive therapeutic radiation or among normal cells incidentally exposed and may be carried on in their descendants. Even the manner of response of the affected cells to the radiant energy may be profoundly altered, survivors among them often showing greatly increased resistance.

Since the whole basis of radiation therapy of tumors is their relative radiosensitivity as contrasted with that of corresponding normal tissues, it is well to evaluate present knowledge and to point out possible avenues for further research.

The years of observation and experimentation since the development by Roentgen of his apparatus and the recent rapid acceleration of research and development in the field of ionizing radiation incident to the utilization of nuclear energy have established for us certain basic facts.

It is the radiant energy absorbed by the tissue or cell that is effective, not that which is delivered to it. For example, a roentgen dose of 700 r generated at 180,000 volts will produce erythema of the skin, while a dose of 1,000 r generated at 1,000,000 volts is required to produce the same effect on the skin because of greater penetration and less absorption of the latter.

All types of ionizing radiations—the roentgen ray, the gamma ray, the alpha particle, the beta particle, the neutron, have essentially the same qualitative effects on cells exposed to them. It is impossible to determine by present means of study what type of ionizing radiation has produced a given change in cells. In general, tissue changes due to irradiation are characteristic, although some are difficult to distinguish from the effects of heat.

The first noticeable effect on cells is interference with mitosis—both diminution in mitotic activity and the appearance of chromosomal abnormalities. This is closely followed by vacuolization and swelling of the cytoplasm. Later pyknosis and autolysis of the injured

Eighth annual Barnard Hospital Lecture.

cells take place. Usually there is but little polymorphonuclear leukocytic infiltration of the irradiated tissue. Sometimes macrophages pick up dead cells or their fragments.

After the usual dose of radiation there is partial or complete recovery of some of the tumor cells, and were it not for the concomitant effects produced on the connective tissue stroma and blood vessels, no lasting effect on an irradiated part would be noted. Isolated cells may be extremely resistant. Over 100,000 r may be required to kill all the fibroblasts in a tissue culture.

One is accustomed to thinking of radiation as affecting a given area evenly and thoroughly. Actually, as far as the ultimate units of protoplasm are concerned, this is not the case. The following example, given by Crowther,[1] illustrates this point well: "Suppose that it were possible to pass, through the air of an ionisation chamber, X-radiation at an intensity of 1 r per second continuously, day and night, for 500 years, we should still leave about one-third of the molecules *unirradiated.*"

The vascular endothelium is readily damaged, inducing thrombosis; hence local impairment of circulation in the tumor and tumor bed results. Subsequently to this there may be fibrosis and hyalinization of the vessel wall. The persisting superficial vessels in an irradiated zone usually eventually become telangiectatic.

Collagen within the field of irradiation becomes more abundant, the individual fibers first swell and then fuse, forming fairly dense hyaline, which acts as a barrier to the metabolic exchange of the tumor cells and hinders their spread into adjacent structures.

Some attempts have been made to formulate the varying response of tumors to therapeutic irradiation. The best known of these, the so-called law of Bergonié and Tribondeau, assumes that more primitive and consequently less differentiated cells are the most sensitive to damage by radiation and that well differentiated cells are relatively resistant. While this holds true to some degree, there are many exceptions to it.

By empiricism it has been possible to establish several general classes into which the various tumors may be divided in accordance with their response to irradiation. Not all tumors of a given type respond alike, but a fair degree of constancy prevails.

Those tumors that regress with a dose of irradiation that does but little harm to adjacent normal tissue may be called radiosensitive. By use of the usual size of fields and roentgen rays of moderate hardness doses ranging up to 2,500 r will cause regression of radiosensitive tumors. Among these tumors are lymphoma, angioendothelioma (Ewing) of bone and multiple myeloma.

Those tumors that regress when a dose is applied which is harmful to a moderate degree only to adjacent normal tissue are called radioresponsive. The doses in this class range from 2,500 to 5,000 r. Among these are basal cell cancers of the skin, some cancers of the thyroid and some of the cervix uteri.

Those tumors that do not regress unless given a dose of over 5,000 r are considered radioresistant. They do not respond any better than does adjacent normal tissue, which will be heavily damaged if enough dosage is given to cause regression. Malignant melanoma, carcinoma of the rectum and carcinoma of the breast fall in this group.

Radiosensitive tumors are not necessarily radiocurable. Often they are not, recurring in a resistant form after the initial regression. In addition each tumor may present individual variation in its response to irradiation, just as persons vary in their response. One of the best examples of this variation is shown by the response of a group to a slight dose of irradiation. One of the group may show no change, another may become leukopenic and still another may become leukopenic and later show leukocytosis.

Attempts to find means of selective irradiation of tumors have long been made. Most of these have been based on selective absorption by the tumor of various types of materials which would in turn absorb the roentgen rays and so enhance the effects of radiation. None have so far been successful.

In recent years the development of radioactive isotopes, first by the cyclotron and later by the pile, has opened up new fields for investigation. So far, radioactive phosphorus, which is selectively absorbed by rapidly growing cells, and radioactive iodine, which is selectively absorbed by thyroid cells under certain conditions, have been the most useful. The selective absorption of these elements makes possible to some degree irradiation of tumor cells without too much injury to normal cells.

My own experience has chiefly been with radioactive phosphorus. This is an effective means of palliation in some cases of leukemia and, if present experiments hold true, may be the method of choice in the treatment of primary polycythemia.

Radioactive iodine, which is selectively absorbed by normal, hyperplastic and, rarely, neoplastic thyroid cells, has proved to be of limited use.

Any discussion on radiation therapy would be incomplete were it to omit mention of the most potent source of radiant energy now available—the pile and atomic bomb. From Hiroshima, Nagasaki and Bikini[2] it has been learned that the biologic effects of the bombs are in large part due to the considerable amount of energy released in the form of ionizing radiations.

These ionizing radiations have much the same biologic effect as do roentgen rays, in fact some of them are identical with roentgen rays. It was learned from study of the Japanese exposed at Hiroshima and Nagasaki and from the animals exposed at Bikini that the effects of these ionizing radiations vary in general with the intensity of exposure. Those who received the heaviest radiation dosage died promptly in shock, others in whom leukopenia developed died of infection, in still others there developed hemorrhagic diathesis and in others anemia or pancytopenia. Aside from the hematopoietic and lymphoid systems, the gonads and the hair follicles were the chief organs to be damaged.

Thus the same general order of sensitivity prevails among the tissues exposed to radiation by an atomic blast as by therapeutic means.

1. Crowther, J. A.: The Biological Action of X-Rays—A Theoretical Review, Brit. J. Radiol. **11**: 132-145, 1938.

2. Warren, S.: The Pathologic Effects of an Instantaneous Dose of Radiation, Cancer Research **6**: 449-453, 1946. Warren, S., and Draeger, R. H.: The Pattern of Injuries Produced by the Atomic Bombs at Hiroshima and Nagasaki, U. S. Nav. M. Bull. **46**: 1349-1354, 1946.

Special Article

HISTORY OF THE AMERICAN MEDICAL ASSOCIATION

MORRIS FISHBEIN, M.D.
Editor, Journal of the American Medical Association and Hygeia, the Health Magazine
Chicago

(Continued from page 392)

(NOTE.—*Following is the fifteenth chapter of a history of the American Medical Association, in process of development for publication in connection with the celebration of the Centennial of the American Medical Association in Atlantic City in June 1947.*

The general account of the history of the Association will be followed by individual histories of the various councils, bureaus, publications and other activities of the Association. The general account is written by the editor of THE JOURNAL. *Each of the other historical contributions will be by a member of the individual council, bureau or agency responsible and now associated with it or directly related to its work. Included will be photographs, signatures and a brief biography of each of the hundred presidents of the American Medical Association. This feature has been prepared by Dr. Walter L. Bierring.*

It will be impossible to publish all of the material in THE JOURNAL. *The complete work will be published in book form. It is hoped to have it available by the time of the annual session.*—ED.)

CHAPTER 15. *The Permanent Secretary Retires and Dr. George H. Simmons Succeeds*

1895-1899

1895

BOOK REVIEWS

Book reviews have always been a source of serious discussion in medical periodicals. When publishers owned most of the medical journals in the United States a definite relationship prevailed between the character of the review, the owner of the periodical and the publisher. This abuse finally reached such proportions that THE JOURNAL found it necessary in its issue of Jan. 12, 1895, to talk about book reviews and to remind its readers that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, at least, would publish criticisms and not eulogies of new books. Some publishers had already developed the technic of avoiding distribution of books for review to periodicals which would not guarantee them favorable reviews.

Improvements in medical journals were, however, definitely on the march. In THE JOURNAL for Jan. 26, 1895 the editor announced that he would no longer publish anonymous communications, a rule that has been followed almost invariably since that date. Unless a physician cares to give his name in discussing the work of another physician or some activity of the American Medical Association, he should not wish the editor to take the responsibility for views which, in most instances, when they are to be published anonymously are venomous and hypercritical rather than honest.

Certain themes recur at cycles of five or ten years in the history of the Association. In March of 1895 the editor said:

> A certain number find great fault with THE JOURNAL, others are alarmed at what they call the political ring rule, and others think the Association ethics is a most serious rock of offense. . . . This is the friction that is a part of all organized movements and indicates growth and progress which is always very promising for the future.

THE FIRST FIRE

On March 31, 1895, the day being Sunday, a fire resulted in serious damage to the equipment and a flooding of the offices of THE JOURNAL. Two of the trustees and the editor arrived in an hour to find the fire practically extinguished. THE JOURNAL appeared on time, but it was quite a strain on the staff. As the year went on, the struggle for improved quality in advertising in medical periodicals began to burst more and more into the open. Letters appeared in various publications with the definite trend toward cleaning advertising pages. The committee in charge of the Rush monument was still at work and still not making much progress. A picture of Benjamin Rush was printed in May 1895, and the committee was urged to collect enough money to build this monument.

In his president's address published May 11, 1895 Dr. Donald Maclean of Detroit devoted himself largely to the history of medicine, with special emphasis on Edinburgh, where he had had his own education. He closed his address with another plea for a national department of health.

THE BALTIMORE SESSION

The annual session, held in Baltimore May 7-10, 1895, was to make history of the greatest importance for the future of medicine in the United States. The population of the United States had increased from 35,000,000 in 1866 to 70,000,000 in 1895. The population of Baltimore had increased from 250,000 to 500,000. Dr. William Osler was chairman of the committee on arrangements, and a number of interesting receptions and visits to educational institutions had been provided.

THE DRIVE FOR CLEAN ADVERTISING

The Medical Society of the State of Pennsylvania had taken the leadership in the attempt to improve the quality of advertising in medical periodicals and had brought a case before the Judicial Council against the practice. The Judicial Council discovered that the trustees and the editor had perhaps inadvertently published some objectionable advertisements. Dr. Solomon Solis-Cohen, who had assumed leadership in this movement, asked for a special committee to take up the matter with the Board of Trustees at a later hour in the session. Dr. John B. Hamilton, editor of THE JOURNAL, by a parliamentary procedure endeavored to prevent the discussion, whereupon Dr. Solis-Cohen said:

> I am speaking to the resolution. The object of this committee is to digest the report, to consider the criticisms that have been offered publicly, and to consider further what the Trustees have to say in relation thereto calmly, deliberately, without prejudice, and then report to the Association at a time when it can again be calmly discussed by the Association with all the necessary data before it. It is to prevent hasty judgment, favorable or unfavorable, that this resolution is offered. It is offered as a means of peace, as a means of carrying out the will of the Association, as a means of elevating THE JOURNAL of the Association to the proud position that it ought to occupy as the leader and not the follower of the medical press of the United States. Therefore we ask that this resolution be adopted.

After much discussion, the resolution proposed by Dr. Solis-Cohen, that a committee of three work with the trustees, was tabled. Then a new resolution introduced

by Dr. E. Fletcher Ingals requesting a committee to consult with the Board of Trustees was passed following a second of the motion by Dr. Solis-Cohen. Dr. Cochran took it that the appointment of such a committee was an indictment of the Board of Trustees. A motion was then made to table the discussion and, following a call for a count, the motion was tabled by a vote of 138 to 108. But the fight was not ended! Following an interlude of discussion on improved rank for medical officers of the Navy, Dr. Leartus Connor of Detroit again introduced the subject and demanded a survey as to the proportion of the membership of the American Medical Association who prescribed secret proprietary remedies. This resolution was briskly discussed and again the question was laid on the table.

The Board of Trustees reported that the editor had been instructed to refuse advertisements of proprietary remedies which were not accompanied by a formula:

> Still further to comply with what appears to be the desire of a large number of those interested in the highest success of THE JOURNAL, the editor, with the termination of present contracts, has been instructed to accept no advertisements of medicinal preparations the proprietors of which do not give a formula containing the official or chemical name and quantity of each composing ingredient to be inserted as a part of the advertisement.

When this report was read, Dr. Solis-Cohen congratulated the trustees on the fact that the Association could "at last stand upon an honest platform." He felt that the Association should demand that every other medical journal should make its pages clean from the shame of "patent" medicines.

> On behalf of the Pennsylvania delegation, as commissioned by them officially, and unofficially on behalf of the hundreds of members who came to me, as well as of various medical societies, to express their desire that we go forward to cleanse THE JOURNAL, I move the approval of the report of the Board of Trustees.

There was great applause and the motion was carried.

And still the issue was not dead. After an interlude of discussion on the raising of the dues, Dr. A. Koenig of Pittsburgh moved a vote of confidence for the Board of Trustees. Dr. Hamilton objected to this motion. There was a lot of discussion back and forth, and finally Dr. Solis-Cohen moved that the whole new discussion be tabled and it was tabled.

AMENDMENTS TO THE BY-LAWS

Next considerable discussion arose over amendments to the Constitution and By-Laws, including a proposal to establish a new section on orthopedic surgery. Dr. N. S. Davis contended that there had been too much carelessness in proposing amendments to the Constitution and By-Laws and that there ought to be more formal proposal of such amendments.

THE INDEX MEDICUS

The *Index Medicus* was again in financial difficulties, and Dr. William Osler offered a resolution requesting members of the Association to support the *Index Medicus*.

THE BATTLE OVER THE SECRETARY

This meeting has also become noted in the history of the Association because of the action that was taken regarding the permanent secretary. There was a provision in the Constitution that the permanent secretary should remain in office until either by death, resignation or removal by a two-thirds vote of the Association a change should take place. The committee on nominations brought in the name of Frank Woodbury of Pennsylvania as secretary. Dr. E. D. Ferguson of New York pointed out that the permanent secretary was really permanent and he moved that the portion of the report pertaining to the permanent secretary be not agreed to. Dr. I. N. Quimby said that the present permanent secretary had served thirty-one years and he concluded with the following emotional appeal:

> Let the sentiment of this Association be *fiat justitia*—exact justice and mercy to every one, whether he be high or low, and let this Association sustain the present secretary, at least for the present. Let us not send him home as though he had some affliction, but let us try to make him feel happy.

This motion was about to pass when Dr. William Osler stood on his chair—the better to be heard—and made the famous speech for which he was hissed, saying bluntly:

> *Fiat justitia* for the Association is all right, but let the quality of mercy be not strained. I stand here and say plainly and honestly before Dr. Atkinson what I and many other members have said behind his back, that he is not an efficient secretary of this Association, and that we have not found him so. [Hisses, followed by applause.] You may hiss if you will, but I unhesitatingly say that no more important step in advance will be taken by the Association than when it changes its secretary. [Cries of Question! Question!]

President Maclean put the motion that the present incumbent remain in office, and it was carried by a large majority. Then Dr. I. N. Love moved that the Constitution be amended so that in the future the secretary should be elected annually.

After the vote was taken, Osler left his seat, walked up onto the platform and took Dr. Atkinson's hand and whispered to him for several minutes. Exactly what was said was not recorded, but apparently it was pleasant. However, the meeting must have had some repercussions in the Osler home. Mrs. Osler wrote in a letter to a friend on June 14:

> After you left, my mother soon departed, and she was followed by one relation and friend after another and I only had time to catch my breath and be ready for that — (you know) American Med. Asso. Our plans were changed somewhat as Dr. Osler's sister-in-law died very suddenly and we of course did not take part in any of the entertainments—and Dr. Osler recalled his dinner invitations. Dr. Donald Maclean (A. M. A. President for the year) and his wife stayed here, also Dr. and Mrs. McGuire from Richmond. I hesitate to express my opinion about the A. M. A. probably yours is the same. Thank goodness it cannot come here again while we live here. . . . Dr. Osler distinguished himself by maligning old Atkinson the secretary—I was at the meeting and frightened to death when I heard him pronounce the "secretary absolutely incompetent." It was a benefit to the Association I am told, but I fail to see it.

William B. Atkinson, the permanent secretary, was by temperament and experience really entitled to hold the position that he held for so many years, until the tempest raised by William Osler led to his final resignation. He was born in Pennsylvania in 1832 and was a graduate of the Central High School in Philadelphia and then from the Jefferson Medical College in 1853 after three years of preceptorship with Dr. Samuel McClellan. He had been a correspondent of the *New Jersey Medical and Surgical Reporter, New York Medical Times,* the *Nashville Medical Journal* and the *New Orleans Medical Journal* and co-editor with Dr. S. W. Butler of the *Medical and Surgical Reporter.* When Dr. S. D. Gross edited the *North American*

Medico-Chirurgical Review he became its obstetric editor. Eventually he published a book of biographies of American physicians. He had been editor of the Transactions of the American Medical Association as secretary, and also editor of the Transactions of the State Medical Society of Pennsylvania when secretary of that organization. His book of biographies called "Physicians and Surgeons of the United States," published in 1878, included the lives of 1,873 physicians, and there had been a second edition in 1880. He held many teaching positions and was the author of a book called "Hints in the Obstetric Practice" and of another called "Therapeutics of Gynecology and Obstetrics." Dr. Atkinson died in Philadelphia Nov. 23, 1909.

PROGRESS WITH THE JOURNAL

In volume 25 for 1895 the name of Dr. Ludvig Hektoen appeared for the first time as an editorial contributor. There was also the name of Dr. John Ridlon. Dr. Hektoen since 1895 has contributed a number of editorials to the columns year after year and has been especially helpful in training young men to take an interest in journalism and in editorial work.

THE JOURNAL was happy in July of 1895 because it included a double page spread in three colors illustrating pathologic appearances in endarteritis. THE JOURNAL was definitely improving in the quality of its illustrations and in the make up of its pages.

THE BATTLE OF THE MONUMENTS

The battle of the monuments was now definitely on. The American Surgical Association was behind the movement to erect a statue to Professor S. D. Gross. The monument to Benjamin Rush was still having hard sledding. Then came a movement on the part of the homeopathic group to erect a monument to Samuel Christian Friedrich Hahnemann. The Rush monument fund had now reached $3,357.39.

Interesting is a letter which appeared in THE JOURNAL for Sept. 21, 1895, stating that THE JOURNAL was now too advanced for many of its readers and that it ought to print articles of less scientific value in order to reach a doctor-reader audience. This continued to be a perennial reminder that some physicians are not quite up to others and that men in the lower brackets feel that journals ought to be edited to their levels.

Louis Pasteur, among the most famous of all the names in medicine, died of paralysis at his home in Paris Sept. 28, 1895, aged 73. The first steamer built by the United States government for its quarantine service had been named in his honor. Long before the time of his death it had been recognized that his had been among the greatest of all contributions to the advancement of medical science.

The library of the American Medical Association had been transferred to the Newberry Library of Chicago. The librarian at the Newberry Library discovered in 1895 that it did not even contain a full set of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION or, in fact, even one volume. It had, however, begun to accumulate some excellent incunabula and some complete sets of medical periodicals.

PARLIAMENTARY LAW

The debates in the annual sessions of the previous two years were so stormy that one member, Dr. A. C. Simonton of San Jose, Calif., in the cooling off period of 1895 wrote a long letter about parliamentary law. He referred particularly to the trustees, who apparently kept copies of Roberts' "Rules of Order" in their pockets and had to refer to them frequently in the midst of debates. Dr. Simonton was seriously interested in parliamentary law, and he felt that it was about time that the rulings in the House of Delegates of the American Medical Association be more in accord with established principles.

1896

ATLANTA

On March 14, 1896 Dr. F. E. Stewart of Detroit proposed that the members of the Association have a permanent badge. He had his own ideas for such an emblem and he invited suggestions from others.

The two year lease of the Association on the rooms at 86 Fifth Avenue terminated April 30, 1896 and it became necessary to move. The stay in the Fifth Avenue headquarters had not been happy. There had been no recovery of anything on account of the damage by fire and water. The power was always breaking down, the halls were dirty, and Dr. Hamilton could not make the owner make good on his verbal promises. A lease was therefore made with the owners of the Dental Building at 61 Market Street, so that the Association occupied the third floor in a new fireproof building. The Association purchased an electric motor so that it could run its own presses. Dr. Hamilton felt, however, that the business necessity of a permanent home for THE JOURNAL was becoming more and more urgent every year. "The bad policy of paying rent," he said, "will be apparent." Thus he urged that the Association take the necessary steps to provide a fund for the purchase of property, the payment of interest and the gradual extinguishment of its debt. "The present move," he said "should be the last move in a rented building. Next time we should go into the permanent home of the Association."

SPECIAL TRAIN TROUBLE

Later in the same month the editor of THE JOURNAL was agitated because some of the members were working independently on the railroads and he had in his responsibility the matter of the special train to Atlanta for the 1896 session. One physician in Chicago who could not get a pass to Atlanta for his wife negotiated with another railroad and tried to work out a special deal with that road. A drug firm in another city, which conducted a medical journal in Chicago, tried to get a special train for that group. This interfered somewhat with the ideas of Dr. Hamilton, and he ended his editorial snappily: "Whether THE JOURNAL ever runs another special to any of the meetings depends upon the view the members take of it."

Now comes the story of a special train which must have given Dr. Hamilton a maximum of annoyance. The train left Chicago on Sunday night, May 3, by the Big Four Road. Everybody was happy and the train pulled into Cincinnati at 9:05 that night exactly on time. The train was now turned over to the Queen and Crescent Railroad. Here Dr. Hamilton discovered that the train occupied by his group would be held in Cincinnati until another train coming from Detroit—operated under the auspices of a magazine called *Detroit Medicine* and in charge of Dr. Harold Moyer of Chicago and Dr. Whitmore of Parke, Davis & Company—could join with his group. The Detroit party had about 33 people, who started out on the Monon route and were delayed somewhere in Indiana, so that Dr. Hamilton's group was held until 11:30 at night without any supper. (It was supper in those days; dinner came in some time

later.) At 11:30 at night everybody got restless and so the Queen and Crescent Railroad brought down a man—"the alleged superintendent," Dr. Hamilton calls him—"a certain Mr. Stephens," to interview the passengers. Mr. Stephens, after some argument, told Dr. Hamilton that the cars belonged to the railroad and that he would move them out of the depot when he got ready. "Arguments, persuasion and entreaties were of no avail to the all-powerful Mr. Stephens, who finally, becoming tired of the importunities, sent the train across the river to Ludlow, Ky., where they completed the allotted period of the detention and were finally joined by the delayed contingent as aforesaid." The train arrived in Chattanooga at 10:30 a. m. and finally the people got something to eat. In the nature of a vast understatement, Dr. Hamilton writes "The originators of the trouble, including the alleged Stephens, were not extremely popular with any of the members of THE JOURNAL party." He continues "A number of physicians on the train made up their minds that they had learned something in the matter of travel over certain railroads, and that when it came to advising patients going South for the winter what line to take in order to have the most comfort and humane attention, they would know how to advise them. A more unfeeling and heartless treatment of passengers has seldom been witnessed than that received at the hands of Mr. Stephens of the Queen & Crescent." Were Dr. Hamilton alive today, we would tell him about the special which left Chicago for San Francisco in 1946 and arrived fourteen hours late.

CELEBRATION OF THE SEMICENTENNIAL

At the Atlanta session, among the first of the resolutions offered was one proposing a suitable celebration of the semicentennial meeting in Philadelphia in 1897.

THE PERMANENT SECRETARY

The question of the permanent secretary continued to be agitated by Dr. I. N. Love of St. Louis, but apparently the membership were not yet ready to make a change. Dr. Love in his discussion said that the ruling that had been made at the Baltimore convention to the effect that the Constitution precluding any change in the secretaryship "paralyzed everybody, consequently proper consideration was not given to the question. I know it paralyzed me," he continued, "and I do not easily paralyze." (Laughter.) Questions elicited the fact that the Constitution was so written in 1864. There was a good deal of discussion on the matter. There was some criticism of Dr. Maclean for not having put the question at the Baltimore meeting, and he suggested that in the interest of peace he had avoided it. Then there was a call for the reading of the minutes of the Baltimore session because apparently there was some doubt as to just what was done and there was some question as to whether the minutes as printed in THE JOURNAL were actually minutes of the meeting. The question was particularly agitated by Dr. H. Bert Ellis of California. Eventually the situation was cleared by a resolution to the effect that the minutes as published in THE JOURNAL be recorded as official minutes. The secretary then arose to point out that he kept his minutes in a big book, that he wrote them out every evening before he went to sleep and that the editor published them in THE JOURNAL exactly as they were in the book. He offered to have the book available for inspection but he did not think it essential because such a book would be too cumbersome to carry around from place to place. The discussion continued until it was lost in the midst of a lot of confusion and apparently nothing further was done with it at that session.

There was still more discussion as to moving THE JOURNAL from Chicago to some place else, and Dr. Garcelon of Maine introduced a resolution calling attention to the fact that the trustees had been authorized to establish a building fund and requesting a ballot of the members of the Association indicating a place where they wished THE JOURNAL to be located permanently.

The Atlanta convention was especially notable for the quality of the entertainment, which included a Georgia barbecue, and for a beautiful address given by John Temple Graves. Typical of his discourse are these paragraphs:

> Atlanta is proud beyond expression of her brilliant galaxy of physicians. We support 200 doctors in this happy town, maintain them in the most lavish splendor and the most indolent leisure. There is nothing here for them to do. In the elixir of this incomparable air and under the blue of these cloudless skies there is never an ailment that an old woman's nostrums wouldn't cure.
>
> Our doctors here are almost without exception millionaires. They practice only on the stranger within our gates. They live in stately mansions, drive in splendid carriages and spend their time in thumping the soundest of "livers" and in feeling the steadiest pulses that ever beat in unison with the hope and progress of the healthiest and bravest city in the South.

He concluded:

> Turn your stethoscopes upon us; level your heartscopes, your brainscopes, try us with the Roentgen rays of all institutions, and you will find that Atlanta, city of conventions, abating no jot or tittle of the sincerity of any past profession, has held in her heart her last and most loving welcome for the doctors of America.

MORE SPECIAL TRAIN TROUBLE

In the same issue in which he reported the minutes of the convention Dr. Hamilton gave a final curtsy to "superintendent Stephens," who had now become Stevens. He opened up with the quotation from Shakespeare:

> But man, proud man,
> Drest in a little brief authority,
> Most ignorant of what he's most assured.
> His glassy essence, like an angry ape,
> Plays such fantastic tricks before high heaven
> As make the angels weep.

Dr. Hamilton repeated the manner in which the physicians had discussed the delay with Mr. Stevens and then he said:

> All these things were explained to the great potentate, but he refused all requests and laughed in our faces, although nearly every male passenger made a personal appeal to him. That his phenomenal brutality should hurt the Queen & Crescent railroad is apparent, and if they are sorry for it they have a plain remedy, that is to repudiate Mr. Stevens, and all his works, at the earliest possible date. It is possible that even the Queen & Crescent railroad may discover that it is not good railroad management to treat a hundred physicians and their families as a trainload of immigrants.

A PERMANENT HOME

Now began the agitation over the permanent home. The trustees had set aside $3,000 to be placed at interest as the commencement of a building fund. All members were sent ballots and requested to vote on the place of the permanent home.

The first page of volume 27 of THE JOURNAL, covering the second half of 1896, reveals the addition to the staff correspondents of several names which were

eventually to play highly significant parts in the growth and development of the Association. Among them was that of Emily Cushing, who served for many, many years as an abstracter of literature, and also William Whitford, who was the official reporter until age and illness caused him to discontinue this work after 34 years.

DIPHTHERIA ANTITOXIN INTRODUCED

Diphtheria antitoxin was now exceedingly prominent as the center of interest, and the American Pediatric Society had conducted quite a modern survey as to its usefulness. The evidence was so convincing that a distinguished committee led by L. Emmett Holt gave the remedy their full support and established a routine dosage. "Antitoxin should be administered as early as possible on a clinical diagnosis, not waiting for a bacteriologic culture," they said.

READING NOTICES

By this time a considerable abuse had risen in American medical journalism which again required years for its correction; it was the so-called "reading notice." The manufacturer of proprietary remedies before signing a contract for purchase of space obtained as a concession a number of editorial notices as to the worthiness of his products. The editor of THE JOURNAL protested, but apparently the abuse was quite outside his ability to correct.

A STANDARD NOMENCLATURE

On Aug. 8, 1896 the editors called attention to the desirability of a standard nomenclature of diseases—a movement which was only to find real accomplishment over forty years later.

THE PERMANENT LOCATION

At the same time the editor published the result of the ballot on the permanent location of THE JOURNAL. Chicago led with 2,128 votes; Washington received 810; New York got only 24, and Philadelphia 48; St. Louis 22 and a good many other cities received just a few votes, including such strange locations as Elmira, N. Y., and Sedalia, Mo.

LEADERS FROM MEDICAL JOURNALISM

Medical journalism at this time occupied a strange place in American medical life. Many of the leaders in American affairs were themselves editors of publications, as, for example, Dr. I. N. Love, who was a trustee of the American Medical Association, Dr. Leartus Connor of Detroit and Dr. Harold N. Moyer, a prominent delegate. Much highly personal journalism resulted from the competition. The repartee in such house organs as Merck's *American Medico-Surgical Bulletin*, Parke, Davis & Company's *Medicine*, the *New York Medical Record*, the *New York Medical Journal* and the *Philadelphia Medical News* with the editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION makes amusing and exciting reading.

MORAL HYGIENE

The hygiene of the period was a moral hygiene more than a scientific medical hygiene. Page after page was devoted to the treatment of inebriety; there were long serial articles published by T. D. Crothers, who conducted an institution for the purpose.

The bicycle was invented about that time and became exceedingly popular. Just as soon at it achieved notice, doctors began to wonder about its medical effects. There were some interesting letters pro and con the bicycle as to what it would do as a cause of vesical and prostatic irritation and how it would react on the reproductive instinct and the sexual appetite of the female. Most of the doctors were convinced however that, regardless of what the bicycle would do to health, the bicycle had come to stay.

THE FIRST EDUCATIONAL NUMBER

The month of September 1896 was highly significant because THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION on September 19 published the first report on the medical colleges of the United States, with a description of the Association of American Medical Colleges and the Southern Medical College Association and their requirements together with a statement concerning each school, its tuition fees, its hours of study and its officers. This was perhaps the first Educational Number. Eventually repeated publication of the facts came to be the most important single step in raising the standards of medical education in the United States. Shortly thereafter THE JOURNAL began printing descriptions of diploma mills and to print letters regarding quackery which served to open these successful campaigns.

THE RUSH MONUMENT

The Rush monument project was still doing poorly, and the matter was all the more serious because the homeopaths had raised $75,000 and were in process of building their monument in Washington.

1897

THE SEMICENTENNIAL YEAR; PHILADELPHIA

The editorial pages of THE JOURNAL early in 1897 began to reflect other editorial projects of great significance for the advancement of American medicine. One was the defense of animal experimentation, necessary because Senator Gallinger had begun the introduction of a series of appeals which were to follow year after year, designed to prevent the use of animals in the District of Columbia. The Army and Navy medical departments and the U. S. Public Health Service were compelled to oppose such measures in their own interests. The American Medical Association opposed them also because enactment of such legislation in the District might well set a pattern for the rest of the nation.

In 1947 Senator Lemke had succeeded to the Gallinger toga as champion for the antivivisectionists.

HYGIENIC ASPECTS OF SKYSCRAPERS

THE JOURNAL discussed learnedly the medical aspects of the modern skyscraper. Some tall buildings were going up; the editor was worried not only about the sanitation of these buildings but also because the buildings were built with steel cores; it seemed that the steel might rust through and the building fall down. The height seemed to offer serious thoughts also in relationship to conflagrations. "Tall buildings," said the editor, "are an experiment and it is too early to say with assurance whether the predictions of those who condemn them may be fully justified."

OSTEOPATHY APPEARS

The osteopaths began to appear prominently in various states seeking recognition in legislation. The first editorials jeered at their predictions and compared them with Madam Mapp, a famous "bonesetter" or "shape mistress." There had been bonesetters in New England as early as 1696. The editor of the *New York Medical*

Record had written an editorial wondering what this new eccentricity of the West meant. To this Dr. Hamilton commented:

The *Medical Record*, however, should not be too severely criticized for its ignorance of "osteopathy" albeit a female "osteopathist" or "bonesetters" in the days of its editor's youth created a great furor in New York City. The *Medical Record's* knowledge of either medical history or medical science is, it must charitably be admitted, an unstable quantity. It revived Alexander II after his encounter with the nihilist by the use of "oxygen sulfate." A medical journal capable of such a chemical extravaganza can hardly be taken seriously on any subject.

By the end of May, however, the editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION began to be disturbed about an osteopathy bill in the state of Illinois, where it had passed the senate.

THE SEMICENTENNIAL MEETING

The really big news of 1897 was the celebration of the semicentennial in Philadelphia. The President was Dr. Nicholas Senn of Chicago, who had already achieved worldwide fame as a surgeon. In his address he recalled the history of the organization. Four members present at the time of its foundation were still alive—Drs. N. S. Davis of Chicago, Alfred Stillé of Philadelphia, J. B. Johnson of St. Louis and D. F. Atwater of Massachusetts. Dr. Senn recalled the progress that had been made in advancing medical education, in the scientific work of the Association, in its improvement of American medical literature and in its development of its own journal. He praised the Code of Ethics and discussed the difficulties which developed when irregular systems of medical practice were introduced in the nation. "The code has fulfilled the purposes for which it was intended and will remain a *noli me tangere* for generations to come," he said. He continued:

I am sure that this feeling will prevail at the centennial celebration fifty years from now, and that our successors will be grateful to us for handing it down to them in an unmutilated form.

He spoke at some length concerning subscriptions to the fund for the Rush monument and urged the erection of a suitable home for the Association with a hall in which its delegates could meet, a library, a museum and other features. He closed with "a glimpse of the future," which is worthy of repetition now that fifty additional years have passed:

A Glimpse of the Future.—Fifty years of steady growth has made the American Medical Association strong. It has passed the experimental stage; it has done a great deal in advancing and diffusing medical knowledge and in the prevention, alleviation and cure of disease. It is the recognized final tribunal which directs and controls all other medical societies and medical educational institutions. It is the final Court of Appeals to which the regular practitioners and the public can look with confidence for the enforcement of a pure discipline and needed protection. It is the highest postgraduate medical institution in this country which without tuition provides a course of instruction annually of a scientific and practical character, well adapted for the busy practitioner, from which every one returns with a firm determination to do more and better work. It is the great bond of fraternal union which binds and cements together the physicians and surgeons and devotees to special departments of medicine and surgery. The Association has done much for the profession and the people in the past, it can and will do more in the future. The organization is now completed and in excellent working order. We can devote in the future all of our time to scientific and practical work. The increase in membership during the last two or three years is unparalleled in the history of the Association. An awakening interest in the usefulness and prosperity of the Association is noticeable on all sides. The papers read in the sections and the discussions are becoming better from year to year. The fiftieth birthday of the Association will give a new impetus to the work and growth of the Association. It is difficult to foretell the possibilities of the second half of the first century of the existence of the Association. It is, however, safe to predict that when the first centennial celebration will be held in this city fifty years from now the membership will have increased from 9,000 to 75,000 or 100,000, and our official organ at that time will be recognized the world over as the most enterprising and best medical journal. Few, if any, who, constituting my audience today, will live to see that day to bear testimony of the proceedings, festivities and incidents commemorating the first semicentennial. The President who will then occupy this Chair and who probably at this time is laboring with his lessons in arithmetic, spelling, geography and grammar in some public school will then review the work of the Association for the first century, and may we trust from the records we shall leave behind that he may adjudge us faithful servants in the cause of science and humanity. Taking up the thread of history from this day he will chronicle inventions and discoveries of which we have now no conception. The literature of today will be as old and useless as that of fifty years ago. We have the satisfaction of having been permitted to live and labor at a time when the science and practice of medicine and surgery were undergoing a complete revolution. We are now laying the cornerstone and are slowly but surely building the foundation for rational medicine and surgery. The work of the next fifty years will no doubt contribute much toward making what has been sought for ages in vain, the rendering of medicine and surgery exact sciences. The American profession will contribute liberally toward accomplishing this object.

In conclusion, let us implore Almighty God to shower the richest blessings upon the American Medical Association and the labors of all and every one of its present and future members. May it please Him who, during His earthly career, went from place to place as the Great Physician to heal the sick and maimed, through His boundless mercy and tender sympathies for suffering mankind, to so guide our lives and labors as to imitate His inspiring example in relieving suffering and in adding to the happiness of our fellowmen.

The meeting in Philadelphia opened auspiciously with an address of welcome by the mayor and by the Hon. Charles Emory Smith, ex-minister to Russia, who represented the governor of the state. Mr. Smith told the convention that the governor was "detained in Harrisburg in the artistic work of amputating gangrene legislation."

There was a magnificent list of lunches and dinners at which the medical publishers of Philadelphia, the officers of various sections and other distinguished medical organizations were hosts.

After the treasurer of the Rush monument committee made his report, a motion was introduced requesting the American Medical Association to set aside $1,000 each year until a sufficient fund could be raised to build the monument. Dr. J. A. Graham of Colorado made an address pledging the state of Colorado for $2,000, whereupon a roll call of states was made and great numbers pledged anywhere from $2,000 for the state to hundreds of dollars individually. At the end of this great rally Dr. Albert L. Gihon of the U. S. Navy, who had for so many years promoted this fund, thanked the delegates and promised the Association that he would live to see the fulfilment of this work.

The treasurer of the Association made a report indicating a total business of around $56,000 for the year, with $5,000 cash on hand.

Again the question was raised as to the permanent secretary, and Dr. I. N. Love announced that he was not pushing the question. His announcement was greeted with applause. The Association had not yet developed a businesslike method for recording its membership or collecting its dues. There was a tremendous discussion over the fact that the railroad gave half rates to political bodies, synods and Christian Endeavor units but that the best the doctors could get was a fare and a third. In the midst of this discussion it was announced that President William McKinley was about to enter the hall. The proceedings state that:

> A moment or two later President McKinley came in arm in arm with Dr. Senn, who had returned to the rear of the stage to perform the office of escort, immediately after quieting down the Association. Dr. Hare preceded Dr. Senn and President McKinley; Mayor Warwick and Governor Hastings and Dr. Pepper and the others of the party attending President McKinley came after. The Association rose and cheered heartily for a minute or two. Quiet being restored, Dr. Senn presented President McKinley, who addressed the Association.

President McKinley merely conveyed greetings and stated that he had paused to pay respectful homage to the noble profession which those present so worthily represented.

Then a brilliant and witty address was made by Governor Hastings of Pennsylvania. A few quotations follow:

> We have all seen the ideal physician, whose presence in the sick room is as welcome as the morning sunshine; his voice is a benediction, his touch an inspiration and his presence an emblem of security To him children turn, and the marks of pain are changed into the expression of love and confidence. The aged reveal to him the secrets of their lives and their hopes of the life hereafter; mothers forget their vigils of the night in loving anticipation for the restoration of their revered or dear ones, or perhaps in the contemplation of the inevitable that the pathway to the tomb shall be strewn with roses in the confidence of a Redeemer's love.
>
> The development of medicine from a layman's point of view has been greater than that of any other science during the last hundred years. There was left a hiatus for a long period of time, when medicine appeared to be nothing but an empiric art. It is very, very different now. I was speaking to you a moment ago about the erection of statues or monuments to our great philanthropists, great soldiers, etc., and allow me to say that I think it is absolutely wrong and decidedly un-American that we do not erect monuments and statues to the great masters of medical science in this country. Then too I have been puzzled at the number of new diseases you have discovered. I read in a history of the fourteenth century by Horner something about diseases of the skin, in which he said there were three diseases of the skin. One was a disease which could be cured by the use of sulfur, a second disease of the skin could be cured by the use of mercury, and the other was a disease of the skin which the devil himself could not cure.

AGAIN CLEAN ADVERTISING

The Board of Trustees reported that some attempt to regulate the advertisements had resulted in a loss of nearly $4,000 because the advertisers felt that "the continued publication of a formula gives every druggist opportunity to enter into competition with the manufacturer of such specialties." The board put up to the Association its willingness to make some change in the manner and standard of advertising. There had been an increase in the membership of the Association. The board had invested $3,000 in a first mortgage on real estate in the city of Indianapolis. Because neither the Association nor the Board of Trustees was a chartered or legal corporation, the investment had to be made in the name of one of the board as trustee for the Association. Owing to a bank failure the funds of the Association had been placed in peril. This offered difficulties because the Board of Trustees did authorize that a charter should be secured. On motion the report was accepted and the action of the board in securing incorporation was concurred in.

The convention celebrated with jubilee exercises. Dr. N. S. Davis of Chicago, founder of the Association, appeared on the stage escorted by the presidents of the state medical societies and the presidents of the state boards of medical examiners. Dr. John B. Roberts, chairman of the committee on anniversary exercises, presented Dr. Davis, calling attention to the fact that the fifty-two years that had passed since Dr. Davis's first step toward organization of the Association had been followed by the establishment of a higher standard of education and that there were now medical examining boards in nearly every state of the Union as well as state medical societies. President Senn greeted Dr. Davis on behalf of the Association; then Dr. Davis recited again a brief history of the organization, paying tribute to the many distinguished physicians who had participated in its work. Letters were presented from Drs. Atwater of Springfield, Mass., and John B. Johnson of St. Louis, who had been present at the first meeting.

At this session an action was taken offering a gold medal to members for meritorious work, establishing all addresses delivered before the entire Association as orations to distinguish them from the addresses of the chairmen of the sections and establishing an illustrated lecture to be read on the third evening devoted to some medical subject.

THE AUTHORITY OF THE BOARD

As the session ended, a few matters of great importance for the future of the Association were determined. One was a debate with final action on the decision that all actions of the Association requiring appropriation of funds must go to the Board of Trustees. This included even a motion to print 3,000 copies of the articles of incorporation, the Constitution and By-Laws and the Principles of Ethics.

DECISION BY A WITTICISM

Denver was chosen as the place of meeting. It is rather amusing that this decision was made as a result of a witticism. The competing communities were Columbus, Ohio; Tampa, Fla., and Birmingham, Ala. Those who had been urging Columbus prepared a map showing with what ease it could be reached from those centers. The delegate from Denver merely said "You will not need a map to find Denver."

ANIMAL EXPERIMENTATION

A significant address at this session was the statement by W. W. Keen beginning the campaign in which he was enlisted the rest of his life in behalf of experimentation on animals. The Association voted to send a reprint of that address to every Senator and Congressman. Dr. Keen reviewed the progress that had been made in medicine and surgery over fifty years. He credited this progress to the advance of medical teaching with the building of libraries and medical literature, the development of the allied medical sciences, the introduction of anesthesia, the development of anti-

septic surgery, the rise of bacteriology and immunology, animal experimentation, and the use of instruments of precision. At one point in his address he said:

> Bacteriology would not now exist as a science, nor would accurate modern surgery and a large part of modern medicine be possible, had experiments upon animals been prohibited, as some zoophilous men and women who love dogs better than men and women, and even little children, desire.

He concluded his address with these paragraphs:

> We have discovered the actual cause of tetanus, tuberculosis, erysipelas, suppuration and a host of other diseases and conditions, of the cause of which we were wholly ignorant a few years ago. The causes of many other disorders, both medical and surgical, still remain hidden from our view. We know almost nothing of the origin of benign tumors and are groping to discover the origin of cancer, sarcoma and other malignant growths. When we have discovered the cause, we are nearly half way, or at least a long way, on the road to the discovery of the cure, and I think it not unlikely that in 1947 your then orator will be able to point to the time when a definite knowledge of the causes of these diseases was attained, and probably to a time when their cure was first instituted.
>
> That will be a surgical paradise when we can lay aside the knife and by means of suitable toxins or antitoxins, drugs or other methods of treatment control inflammation, arrest suppuration, stay the ravages of tuberculosis and syphilis, abort or disperse tumors, cure cancer and, it may be, so prolong human life that all of his then audience will die either of accident or old age. Would that you and I could be alive in 1947 to join in the glorious surgical Te Deum!

As the semicentennial passed, Leartus Connor wrote from Detroit congratulating the Association on a tremendous occasion and predicting that the sections and section work might one day be the chief function of the American Medical Association. He pointed out that the Association has one immense advantage over the special societies in the inexhaustible source of its membership.

Leartus Connor, particularly prominent in the affairs of the American Medical Association, was born in New York, Jan. 29, 1843. After graduation from Williams College in Massachusetts he taught for two years as an assistant principal in Mexico Academy of Mexico, N. Y. He studied under Dr. George L. Dayton and then during 1867-1868 in the medical department of the University of Michigan. From there he went to the College of Physicians and Surgeons in New York City and graduated in 1870. In 1871 he moved to Detroit to become teacher of chemistry in the Detroit Medical College, succeeding eventually to the positions of professor of physiology and clinical medicine and then professor of diseases of the eye and ear. At various times he edited a medical journal known as the *Detroit Review of Medicine and Pharmacy*, the *Detroit Medical Journal*, the *Detroit Lancet* and the *American Lancet*. For seven years he was secretary of the Association of American Medical Colleges. He had also been president of the American Academy of Medicine and of the American Medical Editors Association, chairman of the Section on Ophthalmology of the American Medical Association and vice president in 1882-1883 and a trustee from 1883 to 1889 and again from 1892 to 1894. He was president of the Michigan State Medical Society in 1902-1903 and chairman of its council from 1902 to 1905. He wrote widely in the field of medicine and contributed many biographies to the "Cyclopedia of American Medical Biography." Dr. Connor died on April 16, 1911.

MEDICAL PATENTS

An interesting item in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for Sept. 18, 1897 was an article entitled "Is It Ethical for Medical Men to Patent Medical Inventions?" It consisted largely of an attack on proprietary or "patent" medicines, and its tone in general was opposed to secrecy and patents in the field of medicine. When it was read many physicians arose to agree with the speaker. One of the most remarkable speeches was that of Dr. Squibb, founder of the house of E. R. Squibb & Sons. Dr. Squibb said:

> I do not myself think that anything should be patented by either physician or pharmacist. I am sure that the patient would not be benefited thereby. I may say in regard to "patent" medicines that the medical journals themselves are largely responsible for the existence of this class of remedies. If the journals would cease to distribute their advertisements, the sales would fall off 75 per cent. If editors of journals would use their influence to discourage the publication of such testimonials, it would be of great advantage.

1898

DENVER; THE SPANISH-AMERICAN WAR

The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION began 1898 with an increased number of pages, a new press and some new type. The editor proposed particularly an increased amount of space for society proceedings. He called attention to the fact that some of the newest discoveries in medicine appeared in the proceedings of small societies and that it would be for the reader to differentiate between what was important and what was not.

The battle for animal experimentation had begun to enlist many of the great leaders of American medicine. Dr. William H. Welch of Johns Hopkins University contributed a notable essay citing his objections to the Gallinger bill. THE JOURNAL was urging doctors everywhere to reach their Congressmen and Senators with messages condemning this legislation.

Late in March THE JOURNAL appeared with an editorial on some medical questions of a possible war. It discussed the tremendous advances that had been made in military science and wondered whether or not human beings would be able to stand the high explosives and steel ships. "In case of hostilities, the sanitary problems on the island of Cuba will be many and full of interest," said the editor and, perhaps satirically, "The march through Spain from Cordova to Madrid will furnish much of interest to the medical profession." In April 1898 the coming of war in Cuba was the chief topic of interest. The editor of THE JOURNAL expressed little fear because Surgeon General Sternberg knew all about yellow fever and he gave good advice about boiling the water. "There is no question," he said, "but immunity from yellow fever can be secured by the rigid observation of sanitary regulations and prompt isolation of any infected case among the troops that may arise through carelessness or faulty hygiene." When the call for volunteers came, THE JOURNAL urged doctors to give their services. "As the number called out is small compared with the population of the country," said THE JOURNAL, "only well grown and perfectly sound men should be accepted."

RAILROAD RATES

There was great happiness in the profession because the railroads had finally given the doctors the same rates that they gave to members of the Christian

Endeavor for their conventions. The trip to Denver would cost only one way fare plus $2.

When the Association met in Denver, President Sternberg was unable to be present because his official duties kept him in Washington. His address was read for him by Colonel Woodhull of the U. S. Army. In the address George M. Sternberg discussed the progress of medical science. He encouraged the proposal for the establishment of an organization of defense of medical research. He spoke learnedly about the importance of evaluating negative evidence as well as that favorable to new discoveries. He urged greater attention to the use of the laboratory and greater study of the basic sciences. And he concluded that what had been said "would show that there is no room for creeds and pathies in medicine, any more than in astronomy, geology or botany."

In the June issues of THE JOURNAL, Lieut. Col. Nicholas Senn of the National Guard and Illinois Volunteers began his War Correspondence, which was to be a significant feature of THE JOURNAL during the Spanish-American War.

Now THE JOURNAL began printing weekly comments to the effect that the secretary of the business committee, Dr. Bulkley, had failed to turn in the minutes. The permanent secretary had to share the responsibility. In fact, the editor of THE JOURNAL said that it was up to the permanent secretary to see to it that the intense desire of the business committee to conduct the affairs of the Association did not lead its manager to suppress the minutes altogether. Probably the minutes arrived late, because a goodly share of them appeared in the same number in which the editorial complaint is printed.

By this time the technical business of the Association had become so complicated that there began to be complaints that the delegates had no opportunity to attend the scientific meetings. An attempt was made to work out an hourly schedule that would satisfy every one.

Some letters were sent to the editor explaining what had happened to the minutes, and the editor reproved Dr. L. D. Bulkley, telling him that the minutes were the property of the Association and that he had no right to carry them away.

Dr. Richard French Stone of Indianapolis reported that he had worked out a badge for the Association and had it patented so that it would be under the control of the Association. It was an interesting design including a circular spear with a pointed cross. Eventually this design was not adopted.

Dr. William Bailey of Louisville, Ky., offered a resolution to the effect that an active secretary, who could devote his whole time to the work, should be appointed at a salary not exceeding $3,000 a year to work under the present business committee and that the present permanent secretary be retained with the title "honorary secretary." The business committee recommended that his resolution lie over for one year and stated that it would propose changes in the Constitution and By-Laws for the next session. The matter was referred to the Board of Trustees. Out of this came the employment of Dr. George H. Simmons, who was to be the most important force for the next two decades in placing the American Medical Association on the road to financial success and leadership of American medicine.

A motion was passed for the preparation of a membership button.

At the fourth general session there was still more debate over the minutes, which Dr. I. N. Love insisted were not correctly presented. Members insisted that the reporter was incompetent. Dr. Atkinson was bitterly criticized for leaving out portions of the minutes in his reading. Dr. Atkinson became annoyed and said there would be no trouble in keeping the minutes if the doctors would write out their resolutions and turn them in. The end result was an affirmation of the desirability for having a secretary elected annually and for having an accurate report on the minutes day by day.

Another resolution tried to bring about peace with the disaffected medical societies of New York by rescinding all previous actions in relationship to them. Still another resolution proposed to appoint a committee to go over all textbooks in the field of physiology and hygiene in order to make sure of correctness in their statements. Again came the resolution that all officers of the Association be elected for one year. This was laid on the table.

THE BOARD OF TRUSTEES

The report of the Board of Trustees was exceptional in that it was for the first time a complete statement of comparison of the accomplishments of THE JOURNAL with other publications. It was now clear that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION was publishing more material than other medical periodicals in the United States but was not carrying nearly as much advertising as the *Boston Medical and Surgical Journal* or the *New York Medical Journal* and the *New York Medical Record*. It was estimated that the ruling on proprietary medicines was causing THE JOURNAL a loss of from $8,000 to $10,000 annually, but was nevertheless successful. The Association had accumulated a great deal of property in the way of machinery and office furniture and it put another $10,000 in the investment fund.

Now Dr. Gihon was able to report that the Rush monument fund had tripled and he now had nearly $12,000.

At this time the Board of Trustees had recommended to the Association that any place that wanted to hold the meeting would have to supply the necessary halls free of expense to the Association.

Practically all resolutions had been referred to the business committee, which rejected the proposal to include anything about the textbooks. The committee put back to the Association as a whole the question of bringing back the New York physicians. Dr. Hobart E. Hare, in an important address, explained the difficulties that prevailed. Dr. X. C. Scott of Cleveland in a reply called attention to the effect that the difficulties with New York involved the Code of Ethics. He was supported by Dr. E. D. Ferguson. There was great heat engendered over this debate with shouts of "No! No!" and "Yes! Yes!" and with cries of "Good! Good!" Dr. W. P. Munn of Denver spoke passionately and concluded "We have all we can do to keep out the dead rot of commercialism and are we going to be trodden down by this derelict, dead, rotten society of New York, which is continually sending" [cries of "No!" mingled with hisses, the final words of the sentence being inaudible]. Dr. Edward Jackson of Philadelphia hoped that the question would be settled once and for all. Then the question was settled by Dr. W. T. Bishop of Harrisburg, Pa., who pointed out

that there could be only one state society in any state and there were two in New York and until New York got together there was no chance to settle the question.

DEATH OF DR. JOHN B. HAMILTON

The issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION dated Dec. 31, 1898 opened its editorial column with a black border and the words:

It is our painful duty to record the death of the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION on the evening of Dec. 24, 1898 at his residence at Elgin, Ill. The immediate cause of his decease was hemorrhage from a perforation of the intestine, communicating with a large abscess outside the bowel, which terminated life after an illness of less than one month.

The concluding paragraphs tell the story of the terrific work in which he engaged during his later years:

The leading sanitarian of the country, in all matters of national interest, his advice was sought in every quarter. No medical gathering of national or international importance was complete without his presence. His vigorous form, his genial countenance, radiant with energy and good will, his persuasive voice, were never to be forgotten features in every such assembly. At home his professional duties, his hospital work, his extensive private practice were enough to wear out any ordinary man; but he was ever ready to expend his energies in behalf of any worthy cause that appealed to him for aid. In this way he gave much time and thought to the organization of the new Public Library in Chicago and was most efficient as President of its Board of Trustees. To the surprise of his friends, despite this accumulation of cares, he accepted, in 1896-1897, the position of superintendent of the Northern Illinois Hospital for the Insane, at Elgin, Ill.—an office that heretofore was always considered sufficient to occupy the whole time of an ordinary official incumbent. But the Doctor speedily showed his mettle by a reorganization of the administration that secured improvement in the care of patients, while leaving time for all his other labors—thus illustrating the old observation that among first class administrators the busiest men still have the most leisure.

Now, alas, this career of action has reached its limit. As we look back upon its years we can more fully than ever appreciate its magnitude and its beneficent efficiency. Dr. Hamilton was fortunate in finding full scope for his remarkable power as a founder and organizer of incipient enterprises. He was fortunate also in being permitted to witness the success of his efforts, and he was doubly fortunate in being called to his reward before age or misfortune or any of the ills of life could dim the splendor of his reputation. He has gone, but his works live and will forever exhibit the impress of his constructive power.

1899

COLUMBUS, OHIO

The first volume for the year 1899 contains a title page which indicates that it was edited for the Association under the direction of the Board of Trustees by George H. Simmons, A.M., M.D. This notice was to continue for the next twenty-five years. There are many stories relative to the selection of Dr. George H. Simmons as editor of THE JOURNAL. The report of the Board of Trustees simply says:

For the last three months of the year the management was greatly embarrassed by the sickness and death of the late editor, Dr. John B. Hamilton. Under his personal supervision THE JOURNAL had increased to nearly three times its original subscription and had gradually obtained a well equipped plant and a large reserve fund but, more than all, a recognized position among tthe reputable journals of the country.

On Jan. 1, 1899, shortly after the announcement of the death of Dr. Hamilton, a called meeting of the Board of Trustees was held, at which it was resolved to continue the conduct of THE JOURNAL business under the direction of the resident trustee, Dr. Truman W. Miller, who had very generously, at the sacrifice of his own interests, assumed the management, on the demise of the editor. At the direction of the Board he had the accounts of THE JOURNAL office and the treasurer examined by an expert accountant, who pronounced them correct. At the annual meeting of the Board, February 17 last, after a careful canvass of the available editorial material, Dr. George H. Simmons of Lincoln, Neb., was chosen editor for one year, at a salary of $5,000, with the stipulation that he should move to Chicago and devote his whole time to the work of THE JOURNAL. Your Board congratulates itself that the wisdom of its selection as editor has been efficiently demonstrated by the subsequent progress of THE JOURNAL. The changes that have been made render it more valuable to its patrons and justify the hope of the Board that it shall become the representative medical journal of the world. Other progressive features are under contemplation. A better grade of white paper will be used in the next volume, and the Board has authorized the purchase of two Mergenthaler linotype machines, at an expense of $6,700, which will insure the use of new type for every issue.

Later in this history a chapter will deal with the details of the life and of the work of Dr. George H. Simmons. According to the best available evidence he was chosen from a considerable group of candidates whose names had been suggested from time to time for the position, including such men as Drs. Bayard Holmes, Harold N. Moyer, Ludvig Hektoen, George M. Gould, G. Frank Lydston and P. Maxwell Foshay. Many of them were interviewed personally by the Board of Trustees. It is understood that Dr. Simmons had the special support of Dr. J. T. Priestly of Iowa and Dr. Joseph Eastman of Indianapolis, who had recognized the merit of his work in the Western Surgical Association.

In 1898 a new weekly Philadelphia medical journal was launched with the financial backing of Musser, Keen, Osler and many others, with George M. Gould as editor. In writing to Musser about that time William Osler said "The J. A. M. A. needs him now more than we do and he could put THE JOURNAL on a first class basis which would be a good thing for the rank and file."

The Board of Trustees discussed the action that had been taken relative to the choice of a full time secretary. It appeared that the minutes of previous action were in such confusion that it was impossible for the Board of Trustees to find their way to a definite conclusion. The Board of Trustees recommended, therefore, an amendment to the Constitution to the effect that the editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION should be the secretary of the Association and should serve as such without additional compensation. It was felt that this would be an economical and efficient procedure, since the secretary would have charge of the manuscripts, which he could then turn over to himself in the position of editor. When the Board of Trustees presented this report, Dr. W. B. Atkinson took exception to the statement concerning the confusion in the minutes. He was answered by Dr. T. J. Happel of Tennessee, member of the Board of Trustees, who stated that the trustees had made careful study but had been unable to find minutes sufficient to indicate exactly what the Association had done in the matter in question. The motion was put and carried. Thus Dr. Simmons on June 7, 1899 was confirmed by the Association as editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and as its secretary.

In the period between the death of Dr. Hamilton in December and the time of the meeting of the Board of Trustees in February 1899 THE JOURNAL was conducted under the direction of the resident secretary of the Board of Trustees, Dr. Truman W. Miller, Chicago.

Dr. Truman W. Miller died in 1900 at the age of 60. He had received his medical education at the College of Physicians and Surgeons of New York and his degree of M.D. from the Geneva Medical College. He served in the Civil War and in 1873 was appointed Assistant Surgeon in the U. S. Marine-Hospital Service. In 1877 he was promoted to Surgeon and resigned in 1886. He had served on the staffs of many of Chicago's prominent hospitals. Known as a man of action not much given to writing or speaking but known for a pertinacity of purpose and executive ability, he originated the Chicago Polyclinic.

Significantly, with the assumption by Dr. Simmons of the position of secretary-editor the list of editorial contributors, assistants and other members of the staff of the headquarters office of the American Medical Association disappeared from the pages of THE JOURNAL. Dr. Simmons assumed management of the headquarters office on March 1. THE JOURNAL proceeded without missing a page or an issue. It is not possible to observe any significant changes in the publication from the period of Hamilton until the issue of March 18, when the editorial columns began to contain a number of small notations on medical affairs, now published under the title of "Current Comment." The popularity of these minor comments is indicated by their continuance since that date. In March a department of medical news was introduced into THE JOURNAL and also a section of questions and answers. In April the department of current medical literature was established, with a listing of the contents of other medical publications and abstracts of significant articles. These features have been continuously in THE JOURNAL since that time.

Two interesting articles appeared in THE JOURNAL in April 1899 and are an indication of the trend of thought of the period. The leading article for April 1 was entitled "Some of the Minor Immoralities of the Tobacco Habit." The hygiene of the period was becoming even more teetotalitarian. Here is a paragraph from this extraordinary scientific contribution:

> The vulgarity and licentiousness of the press, with its mercenary pandering to vice, corrupting as it does that very fountain of national strength, the home; the lubricity, the demoralizing baseness of the degraded drama, disfigurement of hoardings by the cigaret-soaked indecencies of the variety stage, making it difficult for our children to walk the streets without contamination, the growing fondness for certain social functions with their flimsy vaudeville adornments, the mockery of and attempted obliteration of personal puritanism, the crass things done by tobacco-biased young people, degradation of seats of learning by the introduction of smoking-rooms, those hotbeds of vice and agnosticism, of ballet dancing and brainless burlesque —imbecility and irreverence under the auspices of fashion— defilement of public buildings by foul receptacles provided for a people so base that it is necessary to ask them to please not spit on the floor, the Negro minstrel methods of some of our churches, the effeminacy of religious periodicals with their venal advocacy of successful quackery and fraud, the prevalence of the gambling mania among women, leveling all ranks, wasting energy, dissipating time so much needed in more ennobling ways, medieval grotesqueries, euchre and wine parties for the spiritual and physical benefit of the outcast and sick, made so by gambling and drink! what, unless completely engrossed in other things, could induce thoughtful men to silently submit to these, but that undiscriminating drowsiness of conscience—"denying nothing, doubting everything," so frequently induced by tobacco?

Another article in an April issue was by Charles J. Whalen of Illinois and dealt with the doctor as a politician. It was a plea that physicians enter politics in order to secure needed medical reforms and politics was an avocation for Dr. Whalen until the end of his interesting career in medical affairs.

Under Dr. Simmons' editorship THE JOURNAL began to assume more definite form and departmentalization. The interest of the members is shown in many letters published as correspondence to the editor. The space devoted to society proceedings was greatly elaborated, as was also the space devoted to editorials and comments.

In 1899 the publication of the *Index Medicus* was discontinued because of lack of funds. THE JOURNAL, as well as other publications elsewhere in the world, expressed sorrow but it was not for many years that restoration of this publication to its present high estate was attempted.

In the May 27, 1899 issue, for the first time, appeared a well ordered announcement of the next annual session of the American Medical Association in Columbus, Ohio, with a map of the center of Columbus, full information regarding transportation, hotels and other data necessary to those who would attend the meeting. A feature of the issue of June 3, 1899 was a review of the previous presidents of the American Medical Association with photographs of many of them and a list of the meetings and those who presided. This interesting feature was contributed by Nathan Smith Davis.

A supplement to THE JOURNAL recorded progress in surgery for fifty years by Rudolph W. Matas and progress in medicine by John H. Musser, in gynecology by Charles A. L. Reed, in obstetrics by Frank Stahl, in therapeutics by Hobart A. Hare, in physiology by G. N. Stewart, in anatomy by Frank Baker, in pathology by J. Rilus Eastman, in ophthalmology by Casey A. Wood, in otology by T. Melville Hardie, in laryngology by E. Fletcher Ingals and in neurology and psychiatry by a writer whose name for some reason was not given. There were biographies of the officers of the Association, including the chairman of the Board of Trustees, Dr. Alonzo Garcelon, a complete list of previous members of the Board of Trustees with a group photograph, a brief history of THE JOURNAL and a review of the existing medical periodicals and medical colleges of the country. All this material was included in a special supplement to THE JOURNAL which made it a souvenir number. An editorial reviewed the great progress that had been made in American medicine.

In his president's address Dr. Joseph M. Mathews of Louisville, Ky., made a plea for the removal of the headquarters of the Association to Washington. He thought that it was a mistake to refuse to publish in THE JOURNAL any article read in the Association and that it was up to the readers to select the good from the bad. Dr. Mathews made the suggestion that there be a field secretary to travel about the country and to increase its membership, at the same time soliciting subscriptions to THE JOURNAL. This was to be the most significant of his recommendations. The action favorably taken ultimately on this recommendation led to the most significant steps in reorganization and improvement of membership.

Notwithstanding the tremendous enthusiasm and the numerous contributions that had been made at the 1897 meeting held in Philadelphia, the Rush monument fund had reached only $10,082.52. Dr. Albert L. Gihon

announced that he was leaving for an indefinite residency abroad and resigned as leader for this fund.

The Association had up to this time reached an annual budget of a little over $83,000, and it had more than $18,000 in the treasury.

The Association was urging the employment of women nurses in military hospitals. It urged increased rank for the Surgeon General of the Army, support for the *Index Medicus,* and the creation of a national department of public health with a cabinet minister.

A committee was appointed to revise the Constitution and By-Laws. On recommendation of the executive committee the Association voted not to hold its meetings permanently in Washington and that it avoid too many entertainments. The recommendation for a traveling assistant secretary was referred to the Board of Trustees. Actions were taken to make a special review of tuberculosis and urged the development of sanatoriums and to urge compulsory vaccination against smallpox. A motion had been introduced that there be published a list of members of the Association. This was opposed on the ground that this list would be used by the proprietary drug houses for commercial purposes. Dr. Simmons rose for the first time in the House of Delegates and defended the publication of the list on the grounds that he could sell it for $25 a copy. However, the entire consideration was finally laid on the table.

THE SCIENTIFIC EXHIBIT

Among the most significant and important developments for the advancement of medical science has been the Scientific Exhibit. Today it occupies many thousands of square feet of space and has been characterized as the most valuable effort in behalf of graduate medical education attempted by any organization anywhere in the world. It started with small and simple beginnings. At the meeting of the American Medical Association in 1899 a resolution was introduced by Dr. Charles E. Slocum of Defiance, Ohio, in which he said "that this Association hereby commends the efforts of the Indiana State Medical Society in preserving pathologic specimens and exhibiting the same at this meeting. This exhibit is worthy the attention of every member, being a good example of what careful and persistent attention to pathology may accomplish in a short time when well directed. Such efforts are recommended to all societies as conducive to more careful and methodic diagnosis of treatment." On motion this resolution was adopted.

THE JOURNAL INDEX

The quality of the index to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION notably improved with the second half of 1899 and has come to be recognized as one of the most important general indexes in the field of medicine. With the complete coverage of medical science represented by THE JOURNAL, this index is for most workers in the field of medical biography the first line of attack.

DR. BILLINGS BECOMES ACTIVE

Dr. Frank Billings was chairman of the Section on Medicine in 1899. There were eighty-three papers, and he had succeeded in securing fifty-four abstracts. He made the suggestion that a rule be adopted requiring every member who desires to prepare and present a paper at any future meeting to prepare and send to the officer of the section a short synopsis of the paper to be printed in advance of the meeting. He urged that, if possible, the papers should concern original research, but he recognized the value of full reports of cases when possible supported by thorough postmortem examinations.

NEW PROGRESS THROUGH THE JOURNAL

The differences and disagreements in American medicine were being harmoniously resolved. The quality of THE JOURNAL began to improve. Membership was increasing, as were subscriptions to THE JOURNAL. Dr. Hamilton had been a competent editor, but the quality of the new leadership was clearly apparent. Following leadership by the Chicago *Tribune,* THE JOURNAL began a campaign against Fourth of July accidents, initiating its campaign with an editorial which was to be followed some years later by a careful survey of deaths and accidents as seen by physicians and hospitals throughout the nation.

The enterprise of THE JOURNAL was indicated by publication of the proceedings of the Canadian Medical Association on the same day on which the meeting occurred and distributing it among the Canadian members. The button for the Association was developed following the design originally worked out by Dr. Richard French Stone. This design was later to be discarded for the one now followed.

During the year an attempt was made in Germany to produce an Index Medicus under the name of "Index Medicus Novus." It proved to be a weak effort and quite incapable of replacing the *Index Medicus* that had been developed by John Shaw Billings and Robert Fletcher.

THE SCIENTIFIC EXHIBIT

Gradually new departments such as clinical reports and therapeutic notes were added to THE JOURNAL. In THE JOURNAL for Dec. 2, 1899, Dr. Frank B. Wynn of Indianapolis wrote to the editor about the Scientific Exhibit. In 1897 an appeal had been made to members of the Indiana State Medical Society for pathologic specimens, and at each annual meeting since that date such specimens have been exhibited, reaching 800 in 1899. The exhibit had attracted so much attention in Indiana that the state society appropriated $300 to take the exhibit to the Columbus meeting of the American Medical Association. Dr. Wynn urged a similar exhibit for each meeting of the American Medical Association and together with such an exhibit the establishment of a section on pathology. He felt that there should be a similar exhibit every year and, he concluded, "in seeking to inaugurate a pathologic museum, the executive officers of the American Medical Association should receive the enthusiastic support of every member of the organization. Start the movement at once! Have an exhibit at Atlantic City next year, even if it is a small one! Let us have a wholesome direction from the selfish commercial exhibits! In conclusion, let me say that Indiana, as the pioneer in this field, stands ready to meet the requirement put on her by the national body."

And still THE JOURNAL improved, with special headings of news and center headings of London, Philadelphia and New York, with improved pictures sometimes occupying full pages. A department of New Instruments was added. The prominence of the consideration given to new discoveries and new activities indicated a journalistic quality in the editor that was in advance of his time.

(To be continued)

Clinical Notes, Suggestions and New Instruments

UNILATERAL FRONTAL HYPERHIDROSIS RELIEVED BY SUPRAORBITAL NERVE SECTION

I. M. TARLOV, M.D.
and
ERNST HERZ, M.D.
New York

Disturbances of sweating in areas supplied by peripheral nerves have been described in association with lesions of these nerves but always in the presence of abnormalities of sensory or motor functions. There have been numerous observations [1] of either hyperhidrosis or anhidrosis in cases of traumatic lesions of peripheral nerves. However, the occurrence of hyperhidrosis in the zone of supply of a peripheral nerve in the absence of any accompanying abnormality of function has not hitherto been recorded, to our knowledge. Further justification for this report is the fact that the patient was relieved of her complaint by division of the nerve supplying the affected area.

Fig. 1.—Area of decreased electrical skin resistance before operation.

REPORT OF CASE

Mrs. E. M., aged 30, referred by Dr. Grace Gorham of Norwalk, Conn., suffered from paroxysms of sweating over the left side of the forehead. Her family and past histories were noncontributory except that she and three other members of her family have always been "rather nervous." At the age of 16 years she noticed attacks of sweating "along the inner side of my left eyebrow." Gradually in the course of the next few years the area of perspiration spread to involve the entire left side of her forehead. The disturbance was precipitated by unpleasant thoughts or excitement. "Just reading a murder mystery would bring it on; any sort of emotion, even joy, would cause it. Visiting friends or going out to dinner or playing bridge was most embarrassing to me, because I would have to hold a handkerchief in my hand and keep constantly mopping my brow. It got so bad that I dreaded going out socially. On damp days I noticed that the perspiration might keep coming all day long. It was always on the left side of my forehead. Sometimes being in a draft would start the sweating."

From the Department of Neurosurgery, New York Medical College, and the Department of Neurology, Columbia University College of Physicians and Surgeons and the Neurological Institute of New York.

1. Richter, C. P., and Katz, D. T.: Peripheral Nerve Injuries Determined by the Electrical Skin Resistance Method, J. A. M. A. **122**: 648 (July 3) 1943. Jasper, H., and Robb, P.: Studies of Electrical Skin Resistance in Peripheral Nerve Lesions, J. Neurosurg. **2**: 261 (July) 1945. Herz, E.; Glaser, G. H.; Moldaver, J., and Hoen, T. I.: The Electrical Skin Resistance Test in the Evaluation of Peripheral Nerve Injuries, Arch. Neurol. & Psychiat. **56**: 365 (Oct.) 1946.

The patient was a rather tense woman, 30 years of age, the mother of three children, aged 8, 4 and 1½ years. General physical as well as neurologic examinations did not reveal any abnormality except for a disturbance of sweating over the left side of the forehead. The exact outline of this area was determined by measuring the electrical skin resistance with a

Fig. 2.—Increased sweating on left side of the forehead.

Dermohmeter on the day of the operation, when droplets of sweat covered the left side of the forehead. The area of decreased electrical skin resistance (fig. 1) corresponded closely with the zone of increased sweating (fig. 2). This zone represents the cutaneous area supplied by the supraorbital nerve with respect to both its sensory and also its sudomotor innervation as determined by the Minor starch method (fig. 3).

Section of the supraorbital nerve was therefore recommended and readily accepted by the patient, who was severely embarrassed by her complaint. On March 14, 1946 under local procaine hydrochloride anesthesia the left supraorbital nerve

Fig. 3.—Area of anesthesia and increased electrical skin resistance and small (cross hatched) area of remaining increased skin resistance after operation.

was exposed and separated from the artery, and a section of the nerve about 1 cm. long was excised. The artery remained undamaged. The wound was closed with silk sutures, which were removed on the fourth postoperative day. Healing of the wound was prompt. Since the operation the patient has been relieved of her paroxysms of perspiration, except for slight

persistent sweating which occurs over a small zone covering the area of a five cent piece just above and medial to the inner border of the eyebrow. This hyperhidrosis occurs under the same circumstances now as before the operation, but it is slight and does not cause the patient embarrassment.

Examination of the electrical skin resistance on June 11, 1946 revealed an area of increased resistance with complete

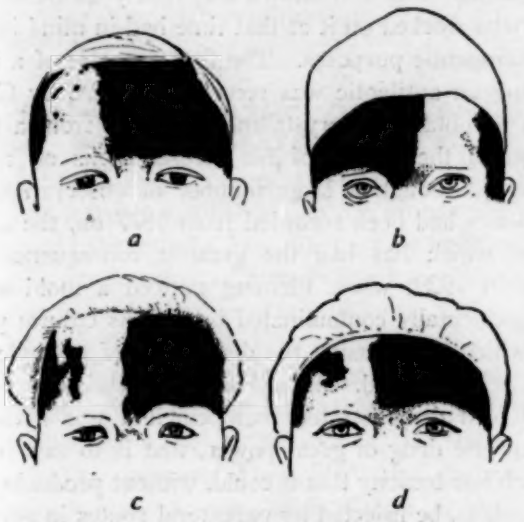

Fig. 4.—Disturbance of sweat secretion in lesions of the supraorbital nerve (after L. Guttman); investigated by Minor's iodine starch method.

loss of sensation and a remaining small zone of decreased resistance without sensory disturbance (fig. 3). At the time of the last examination (July 17, 1946) the area of decreased resistance had vanished, and there was only hypesthesia in the former area.

COMMENT

The result of the operation, which consisted solely of resection of the supraorbital nerve with preservation of the adjacent artery, confirms the conclusions of List and Peet [2] with reference to the course of the sweat fibers to the forehead (fig. 5).

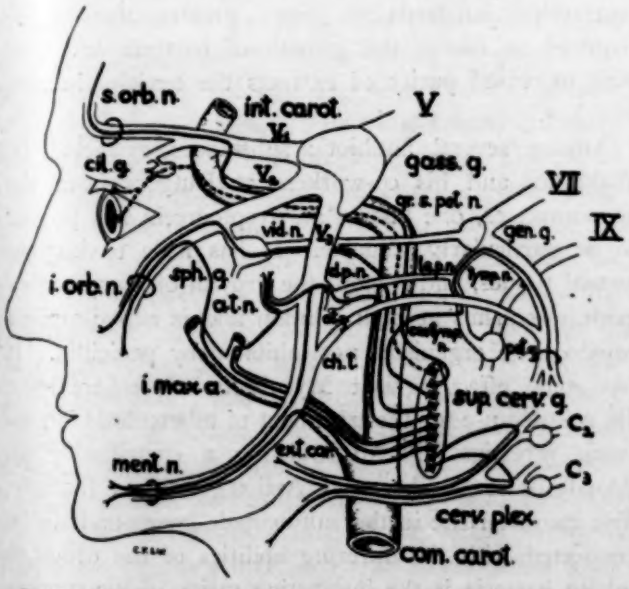

Fig. 5.—Schematic drawing illustrating the probable course of the sympathetic sweat fibers for the face (after List and Peet).

The autonomic fibers from the superior cervical ganglion finally join the branches of the trigeminal nerve shortly before their points of exit through the skull. After section of the supraorbital nerve the interruption of sweating and sensory function in the corresponding area was complete. Sensation was partly restored four months after the operation. With regard to the persistence of sweating and the associated decrease in the electrical skin resistance in the small area shown in figure 3, it is possible that a small branch of the supraorbital nerve supplying this region was not severed at operation.

An apparent reason for the spontaneous occurrence of hyperhidrosis in the area of the supraorbital nerve could not be found. The patient never experienced pain, and a history of trauma to the nerve or of any infectious process in the region of it was lacking. The etiology and pathogenesis of the condition remain unknown. However, one might assume the presence of an irritative process affecting solely the autonomic fibers of a sensory nerve. Further investigation of electrical skin resistance in cases of neuralgia and circumscribed cutaneous conditions may reveal comparable abnormalities of autonomic innervation.

SUMMARY

A case of circumscribed hyperhidrosis over the left side of the forehead is described. After section of the supraorbital nerve the hyperhidrosis was abolished almost completely. The area of disturbed sweating was clearly outlined by measurement of the electrical skin resistance. The result of the operation confirms the conclusion of List and Peet on the course of sweat fibers to the forehead.

2. List, C. F., and Peet, M. M.: Sweat Secretion on the Face and Its Disturbances, Arch. Neurol. & Psychiat. **40**: 443 (Sept.) 1938.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

DIETHYLSTILBESTROL (See New and Nonofficial Remedies, 1946, p. 436).

The following dosage forms have been accepted:

THE HARROWER LABORATORY, INC., GLENDALE, CALIF.

Diethylstilbestrol (in Peanut oil): 1.0 mg. per cc.: 1 cc. ampuls, and 5.0 mg. per cc.: 10 cc. vials, preserved with 0.5 per cent chlorobutanol.

E. S. MILLER LABORATORIES, INC., LOS ANGELES

Tablets Diethylstilbestrol: 0.1 mg., 0.5 mg. and 1.0 mg.

PREMO PHARMACEUTICAL LABORATORIES, INC., NEW YORK

Diethylstilbestrol (in Peanut oil): 0.5 mg. per cc., 1.0 mg. per cc. and 5.0 mg. per cc.: 1 cc. ampuls.

Vaginal Suppositories Diethylstilbestrol: 0.1 mg. and 0.5 mg. Tablets Diethylstilbestrol: 0.1 mg., 0.5 mg., 1.0 mg. and 5.0 mg.

THE VALE CHEMICAL CO., INC., ALLENTOWN, PA.

Tablets Diethylstilbestrol: 0.1 mg., 0.5 mg. and 1.0 mg.

PENICILLIN IN OIL AND WAX (See THE JOURNAL, Sept. 7, 1946, p. 23).

The following dosage forms have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Penicillin (Calcium) in Oil and Wax: 300,000 units per cubic centimeter in B-D[1] 1 cc. glass cartridge with B-D Disposable Cartridge Syringe; and in B-D 1 cc. cartridge, with flushing fluid (benzyl alcohol 1.5 per cent in isotonic solution of sodium chloride), for use in B-D Cartridge Syringe. Calcium penicillin suspended in peanut oil containing 4.8 per cent (W/V) white wax, U. S. P.

THE WM. S. MERRELL CO., CINCINNATI

Penicillin (Calcium) in Oil and Wax: 300,000 units per cubic centimeter, 10 cc. vials. Calcium penicillin suspended in peanut oil containing 4.8 per cent white wax, U. S. P.

WYETH INCORPORATED, PHILADELPHIA

Tubex Penicillin (Calcium) in Oil and Wax: 300,000 units per cubic centimeter. Penicillin calcium suspended in peanut oil containing 4.8 per cent yellow wax, U. S. P.

1. Trademark registered, Becton, Dickinson & Co.

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SATURDAY, FEBRUARY 15, 1947

BACKGROUND TO CHEMOTHERAPY

In a recent issue the British Medical Bulletin [1] publishes, under the heading of "Background to Chemotherapy," a series of articles dealing with the historical and theoretic aspects of chemotherapy. E. M. Lourie believes that the term chemotherapy should be restricted in its meaning to the intention of its originator, Paul Ehrlich, applying only to the treatment of infections by chemical compounds. The aim of the investigator in chemotherapy, according to Schulemann, is to reach the parasite cells and to throw their function so irreversibly out of order that the parasite dies but the host remains as unharmed as possible. Ehrlich's greatest practical achievement was the introduction of arsphenamine (salvarsan) in 1910.

In 1935 Domagk announced p-sulfonamido-chrysoidin (prontosil) as an effective agent against infections with hemolytic streptococci, and Tréfouël, Tréfouël, Bovet and Nitti of the Institute Pasteur demonstrated that the part of the prontosil molecule which conferred staining properties was not essential to its therapeutic powers; these were equally efficient if the substance were abbreviated to p-amino-benzenesulfonamide (commonly known as sulfanilamide). These important contributions of the French workers to the subject of chemotherapy have not received sufficient recognition in relevant literature. The action of sulfanilamide and its successors was found to be mainly directed against hemolytic streptococci, Escherichia coli, meningococci and, to a less extent, gonococci. With the use of sulfapyridine pneumococci also were acted against, and with sulfathiazole and sulfadiazine the range of action widened still further to include that against staphylococci, though the latter are not as susceptible to any sulfonamide compound as they are to penicillin.

Sir Howard Florey points out that although the use of the word "antibiotic" to mean the actual chemical substances involved in bacterial antagonisms was only recently introduced by Waksman and his co-workers, the recognition of antagonisms between bacteria dates to an observation made by Pasteur and Joubert as early as 1877. They observed that if a culture of anthrax bacilli in urine was contaminated by organisms from the air, the anthrax bacilli were destroyed. By 1889, according to Florey, the phenomenon of bacterial antagonisms was well known and nearly all bacteriologists who worked on it at that time had in mind its use for therapeutic purposes. The first example of a mold yielding an antibiotic was recorded in 1896 by Gosio, when he obtained a crystalline substance from a penicillium in the course of his investigations on moldy maize. Although a large number of observations on antibiotics had been recorded from 1877 on, the observation which has had the greatest consequence was made in 1929, when Fleming noticed a mold which had accidentally contaminated one of his culture plates and which was causing the dissolution of staphylococci in its neighborhood. Chain, Florey and their co-workers at Oxford demonstrated that penicillin was a chemotherapeutic drug of great power, that is to say, it was of such low toxicity that it could, without producing any toxic signs, be injected by parenteral routes in amounts which would stop the growth of bacteria in all parts of the body. Results of clinical trial with penicillin were made known in 1943 by Florey and Florey. Two facts of special importance which emerged from the laboratory work at Oxford were (1) that extracted penicillin was fully active in the presence of pus and tissue-breakdown products and of large numbers of bacteria, all of which impaired the antibacterial action of all the sulfonamide drugs known at that time and (2) that even impure extracts were nontoxic to animals in concentrations hundreds of times greater than those required to inhibit the growth of bacteria and that with increased purity of extracts the toxicity became still less.

Among several antibiotic substances extracted by Waksman and his co-workers at Rutgers from the actinomycetes, one known as streptomycin has proved to be particularly valuable. It has little toxicity to animal tissues, and it stops the growth of many pathogenic organisms at high dilution and is active against some of the organisms not inhibited by penicillin. It has some effect against Mycobacterium tuberculosis. Its possible use for the treatment of tuberculosis is now being investigated. McIlwain in a contribution on "Analysis of Antibacterial Action" stresses that the first characteristic in the sulfonamide compounds to be connected with the differing abilities of the drugs to inhibit bacteria is the interacting ratios of the concentrations of the drugs and para-aminobenzoic acid. The second characteristic so correlated is the acidic-dissociation constant of the drugs As to the bacterial systems through which any one agent becomes effective and the organization of living systems in general, it appears that the "receptors" of earlier investigators are now usually regarded as enzyme systems.

1. British Medical Bulletin **40**: (no. 4) 1946.

The symposium contains an interesting contribution on the Nutrition of Bacteria by Sir Paul Fildes, on the Microbial Resistance to Chemotherapeutic Drugs by F. R. Selbie, on the Principles and Practice of Local Chemotherapy by L. P. Garrod and several other valuable papers on related subjects.

ARTIFICIAL TERMINATION OF PREGNANCY FOR ERYTHROBLASTOSIS FETALIS

The routine testing of pregnant women for the Rh factor and the search for antibodies in the serums of those Rh negative patients who have Rh positive husbands is resulting in the detection of literally hundreds of women who show sensitization prior to delivery. Most, of course, are multiparas, of whom some have previously given birth to a child affected by hemolytic disease of the newborn. Some are primigravidous women with or without a history of transfusion or abortion. In every case the question arises Shall this patient be allowed to await spontaneous labor at term, or shall the baby be delivered prematurely, by the induction of labor or by cesarean section? If labor is induced and results in a premature child without evidence of erythroblastosis, the physician wonders whether his intervention was justified. If a cesarean section is performed early and results in the birth of a child with hydrops fetalis, which dies a few minutes or hours later, then the physician knows that his operative intervention was not justified. Such results, occurring with increasing frequency, have led many, if not most, obstetricians to abandon the interruption of pregnancy in these cases. The dilemma is clearly due to the inability of the obstetrician to predict the outcome with any degree of accuracy.

In a recent report Page, Hunt and Lucia [1] indicated that the time at which appreciable amounts of either agglutinating or blocking antibodies appear during pregnancy is directly related to the fetal prognosis. By obtaining the first serum sample not later than the twenty-fourth week of pregnancy and assuming that the antibodies appeared halfway between the time of the last negative sample and the first positive one, the "appearance time" was dated in 49 cases. When only "traces" of antibodies could be detected, or isolated small amounts of anti-Rh or blocking antibodies were noted once but never confirmed, there were no instances of frank erythroblastosis, and all the babies survived. This would indicate that such traces or isolated small amounts may usually be ignored, regardless of when they appear during pregnancy. In the remaining cases appreciable amounts of either agglutinating or blocking antibodies were found and confirmed on examination of subsequent monthly samples. When the "appearance time" was less than ten weeks ante partum, all the infants were normal. When the antibodies appeared from ten to fourteen weeks before delivery 7 of 10 babies showed evidence of hemolytic disease; and while 3 of them succumbed, there were no instances of hydrops fetalis, the most severe form of erythroblastosis. Of the 12 cases in which the antibodies had existed for more than fourteen weeks, there were only 2 infants with erythroblastosis who survived and there were 7 cases of fatal hydrops fetalis. The exposure to persistent and appreciable amounts of either type of antibody for more than nine weeks in 22 mothers resulted in only 5 normal infants, 4 of whom were readily explained by the fact that they were Rh negative, the pregnancy probably having produced an anamnestic recall of previously existing antibodies.

From these preliminary data Page and his co-workers conclude that the artificial termination of pregnancy is probably unnecessary when Rh antibodies first appear less than ten weeks from term and probably useless when they appear more than fifteen weeks from the time selected for induction of labor. "The termination of pregnancy," they state, "by conservative means and the prompt transfusion of an anemic child at birth should result in a higher survival of infants only in that small group of mothers wherein antibodies appear for the first time ten to sixteen weeks before the estimated date of confinement. Beyond that period any attempt to reduce the exposure to ten weeks or less would probably result in the loss of the child from prematurity or from a combination of prematurity and erythroblastosis."

1. Page, E. W.; Hunt, M., and Lucia, S. P.: The Antepartum Prediction of Hemolytic Disease of the Newborn. Am. J. Obst. & Gynec. 52:794 (Nov.) 1946.

THE TAFT-SMITH-BALL-DONNELL MEDICAL CARE BILL

A revision of the Taft-Smith-Ball bill introduced this week is, in its general framework, similar to its predecessor. Senator Donnell has joined as a sponsor and two significant revisions are made.

In the original bill the Administrator of the National Health Agency was to be either a doctor of medicine with at least eight years of experience in the commissioned corps of the United States Public Health Service or a doctor of medicine licensed to practice medicine in one or more of the states, with at least five years of active practice and three years of experience in a responsible position in medical research, teaching or administration. The new bill will provide that the administrator must be a "doctor of medicine licensed to practice in one or more of the states and who is outstanding in the field of medicine."

Again, in the bill introduced in the Seventy-Ninth Congress, the United States Public Health Service, acting through the Surgeon General, was designated as the administrative agency on the federal level in relation to state programs to provide medical and hospital care for families and individuals of low income. This will be changed and there will be established in the pro-

posed National Health Agency an Office of Medical and Hospital Care Services to supervise the administration of state programs. The director of this agency will be a doctor of medicine licensed to practice medicine, who has had at least five years of active medical practice, and who is outstanding in the field of medicine.

The new measure will require, as did the earlier one, that the state agency to administer the contemplated program on a state level must be the state health agency after a specified number of years. This would seem to be an inconsistency, since the federal administrative functions will be removed from the public health agency. It had been suggested that each state be permitted to designate its own agency, without federal interference in the selection.

A new section will be added authorizing an annual appropriation of $10,000,000 for a cancer program, which will replace a section in the old bill proposing grants for general medical research. The Administrator of the National Health Agency will be directed to make a study of the organization and staffing of the agency and report to the Congress his recommendations, the study to include among other things the desirability of retaining or modifying the commissioned corps of the United States Public Health Service and the desirability of establishing an Office of Health and Medical Research as a constituent unit of the agency.

The revised bill, while an improved measure, requires additional consideration, and it is assumed that adequate hearings will be held at which suggestions for improvement may be made before action is taken on it by the Senate Committee on Labor and Public Welfare.

Current Comment

ABSTRACT PERIODICALS

The British Medical Association began publication in January of two new periodicals entitled *Abstracts of World Medicine* and *Abstracts of World Surgery, Obstetrics and Gynaecology*. These are an outgrowth of the *Bulletin of War Medicine* published during the war years and discontinued in 1946. The new periodicals do not attempt to abstract all the articles published in all the medical journals. A selection has been made of the periodicals considered worthy of study, now about 1,000, and from these are chosen for abstract the articles judged to be of use to medical readers. The abstracts are collected under specialized headings, such as Hygiene and Public Health, Physiology and Biochemistry, Pharmacology and Therapeutics and under other medical specialties and groups of diseases. The name of the abstracter is attached to each abstract. As was announced in THE JOURNAL last week a similar publication is contemplated to be published in English in the Netherlands. No doubt, as other nations of the world return to the routine of medical life that prevailed in the prewar years, there may be revivals of abstract periodicals in the German speaking and Slavic nations. In the United States there are available the Current Medical Literature department of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the abstract departments of the specialized journals and several periodicals devoted wholly to abstracts of medical literature. Important also is the extensive abstracting service known as the *International Abstract of Surgery*, which appears in *Surgery, Gynecology and Obstetrics*.

PHYSICIANS IN CIVILIAN PRACTICE DURING WAR

In the event of another war the provision of medical care for civilian populations might be just as vital to victory as care of the men in the armed forces. New methods of war strike at industrial areas. The medical profession is wisely attempting to prepare now the facts and recommendations needed for any such future emergency. Recently 5,000 questionnaires have been sent to physicians, selected at random, who were in civilian practice during the war just ended. On the basis of the answers to these questionnaires, sent out by the Committee on National Emergency Service of the American Medical Association, facts may be developed as to how the civilian population was served in World War II. The questionnaires also provide an opportunity for those who were responsible for civilian care in those years to indicate what changes should be made in the mobilization of medical service in future emergencies. Five thousand questionnaires represent a small percentage of the total number of physicians who remained in civilian practice. Dr. Edward L. Bortz of Philadelphia, chairman of the Committee on National Emergency Service, has appealed to every physician receiving the civilian questionnaire to respond promptly. The accuracy of the facts obtained and the soundness of the conclusions made by the study will be determined to a great degree by the cooperation which those receiving the questionnaire give the committee. The committee received excellent cooperation from the 50,616 former medical officers who were mailed questionnaires last December on their experience in military service. These are now being analyzed and studied. The facts obtained will be used as a basis for recommendations to be made by the committee to the House of Delegates in June. With the cooperation of the 5,000 physicians who are now receiving questionnaires on their civilian experience, the committee will be able to complete the total study of how the medical profession can best serve our population, civilian and military, in the event of a future national emergency. Every physician who receives one of these questionnaires has a professional and humanitarian duty to perform in completing it and returning it promptly. It is preferred that each sign his name, but if any one wishes to remain anonymous, he may do so. A broad representation of facts, experiences and opinions will add to the scientific value of the results.

FUNCTIONAL TESTS IN DIAGNOSIS OF CORONARY DISEASE

Functional tests have been devised to reveal latent coronary insufficiency. They have some applicability for three groups of patients: those with some disorder in the chest slightly suggestive of angina, those whose symptoms resemble those of angina but whose chest pain is mild or atypical, and, finally, patients with clearcut angina with or without previous myocardial infarction. A functional test should provoke pathologic changes in the coronary circulation and cause a relative disproportion between supply of blood and demand, and thereby elicit anginal pain or typical electrocardiographic changes or both. According to Biörck[1] of Stockholm there are at least three ways of functional testing. The oxygen saturation of the blood can be reduced either by giving a patient a gas mixture which is deficient in oxygen or by using a low pressure chamber; the patient can be exercised, which increases the cardiac demand for oxygen without reducing the supply, or the work of the heart can be increased by epinephrine, the latter being the most dangerous method. Biörck has used the anoxemia or, as he prefers to call it, the hypoxemia test, by means of a 10 per cent oxygen and 90 per cent nitrogen mixture breathed for twenty minutes—or less in case definite anginal pain develops. Immediately after finishing the test the patient is allowed to breathe 100 per cent oxygen for at least five minutes. Electrocardiograms are taken at suitable intervals. Such tests may produce unpleasant and even alarming reactions, Biörck says, and cannot be recommended for general use.

1. Biörck, Gunnar: Anoxemia and Exercise Tests in the Diagnosis of Coronary Disease, Am. Heart J. **32**: 689 (Dec.) 1946.

A TRIBUTE TO THE YOUNG PHYSICIAN

Since demobilization, many thousands of experienced physicians have returned from military service to practice in civil life. Remaining in the service to care for the sick and wounded in the peacetime army and in the armies of occupation in Germany and Japan are mostly recent graduates in medicine, many of whom received their professional training under the Army specialized training program. The Deputy Surgeon General of the Army, Brig. Gen. Raymond W. Bliss, who recently returned from an inspection of medical installations in the European theater, has reported on the overall excellence of the service provided by these young physicians in Germany, France and Italy. General Bliss pointed out that during the war the medical corps was more of a cross section of mature American medicine. Today he said the cross section is of recent graduates who have completed their internships and varying degrees of medical and surgical residencies. These young physicians, he said, are alert, well trained, energetic, careful of their examinations of patients and thoroughly interested in their work. Patient care is on a high level and compares favorably with the highest standards of American medical practice. Commanding generals of headquarters, without exception, expressed their appreciation of the quality of the medical officers in their commands. These encouraging words are a well merited tribute to the young physicians now serving this country; they are a tribute also to those who evolved our system of medical education and who maintain its standards.

FUNDAMENTAL REQUIREMENTS OF INSURANCE

Elsewhere in this issue appears a statement of the fundamental requirements for insurance by the director of the Bureau of Medical Economic Research of the American Medical Association. His article sets forth succinctly the points of basic importance in any insurance program. With these points in mind, the fundamental lack of soundness in a nationwide compulsory sickness insurance system in a government such as ours becomes apparent. (The federal Social Security Act does not cover every citizen nor does any other experiment in social insurance in the United States.) The power to include every citizen in any scheme of social insurance is an inherent attribute of sovereignty, although no social insurance system in the world actually covers every person. One hundred per cent full employment cannot be maintained in a free enterprise system but is theoretically possible in a totalitarian society. A nation which can compel every citizen to inclusion in a medical care program could equally compel every citizen to purchase shoes, hats, tobacco or any other item in common use in the nation. A compulsory system of sickness insurance invokes the power of the state to determine the contribution of each citizen, which is essentially a tax, and to determine the extent of the benefit received. In such a system a definite connection between the two scales need not exist. In an insurance plan the benefit must be definitely related to the premium. Social insurance is based on the power of the government to compel action. Thus it could violate all the fundamental requirements of insurance that are listed by Dickinson. The program depends on the power of government to meet deficits by other taxes without relationship to the actual cost of the insurance. Thus insurance and social insurance are two entirely different procedures. The American people have shown their confidence in insurance by their voluntary purchase of life insurance, motor car insurance, fire insurance and other forms in which the basic principles of insurance prevail. They can no doubt be persuaded or taught similarly to avail themselves of sound voluntary systems of insurance against the costs of hospitalization and sickness. If Americans want to maintain the free society by which our nation has grown to its present high estate they will abide by the time tested requirements of insurance in seeking protection against the hazards of sickness and they will avoid the blind faith that would be necessary to usher in a uniform system of compulsory sickness insurance in this country.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Feb. 12, 1947.

President Asks Continuance of Controls on Streptomycin

American made streptomycin is one of eight groups of items on which President Truman has asked Congress to continue controls beyond March 31. According to the Civilian Production Administration the request was made because of the growing importance of the drug in the national health program. A sudden rise in demand is expected if further clinical evaluation indicates that it is useful in the treatment of tuberculosis and other diseases. Dr. Paul A. Bunn, associate chief, Veterans Administration tuberculosis division, reports that streptomycin has been so successful in the treatment of advanced tuberculosis in seven veterans' hospitals that nineteen study units have been added. Of 50 veterans who had the deadly, military type, the meningitis type or a combination and would certainly have died, 27 are alive, Dr. Bunn reported. Of 91 veterans with the common pulmonary tuberculosis, all advanced, 77 per cent improved with the drug treatment and none got worse. No cases were completely cured. Studies have been conducted since last July.

Stand of Association Against Insurance Legislation Explained by Speaker

Dr. Henry Cook Macatee, president, Washington Health Security Administration, told the Washington Club here why the American Medical Association opposes proposed legislation for federal health insurance. He said the medical profession is not opposed to "socialized medicine" and cited various projects the profession has supported, such as milk pasteurization, vaccinations, community hospitals and other health measures designed for the public good. He declared that the Wagner-Murray-Dingell bill was opposed because it would hinder medical research, doctor-patient relationships and other liberties contributing to medical progress and simultaneously would fail to provide promised benefits. The bill would place medicine under control of bureaucracy, and the costs would be prohibitive.

Neurosyphilis on Decline Twenty-Five Years After Beginning of Malaria Treatment

Dr. Theodore C. Fong, head of the syphilis department in the medical-surgical hospital at St. Elizabeths Hospital, believes that neurosyphilis was on the decline when the twenty-fifth anniversary of the use of malaria to fight dementia paralytica was noted here. He stated his belief that the crusade against venereal disease, together with advances in chemotherapy, especially the use of penicillin, will further reduce hospital admissions for dementia paralytica and locomotor ataxia. Dr. William P. Herbst, president of the District of Columbia Social Hygiene Society, reports that the capital's venereal disease rate has been reduced by better diagnosis and treatment and improved public health programs. Major Gen. Norman T. Kirk, Surgeon General of the Army, declared the venereal disease rate among American troops had been exaggerated.

Study of Proposals to Create Federal Department of Health

Dr. George F. Zook, president of the American Council of Education, heads a committee appointed to study proposals to create a federal department of health, education and security. The committee has been sponsored by the council and by the National Social Welfare Assembly. Serving as co-chairman are Dr. Ernest L. Stebbins, Johns Hopkins University, and C. M. Bookman, executive vice president, Cincinnati Community Chest.

Cancer Survey to Be Conducted

Dr. Harold F. Dorn of the U. S. Public Health Service has been lent to the District health department to conduct a cancer survey. He will be assisted by ten medical students from local medical schools. Dr. Calvin T. Klopp, director of the Warwick Memorial Cancer Clinic at Garfield Hospital, announced that the clinic has been completely reorganized so that any patient having or suspected of having cancer can be accepted. Dr. John Rogers, research trainee at the National Cancer Institute, was assigned to the clinic for training. The institute announced the opening of a cancer clinic for children in Gallinger Hospital. Institute specialists report that tumors in children are more common than is realized.

Bill to End "Fly by Night" Training Schools for Practical Nurses

A bill to end "fly by night" training schools for practical nurses has been presented to District authorities for submission to Congress. It has the backing of the Undergraduate and Practical Nurses' Association, the Graduate Registered Nurses' Association, the Medical Society of the District of Columbia and the District board of health. Mrs. Elizabeth Earl, legislative chairman, Graduate Nurses, stated that "the bill will standardize education and training schedules of all practical nurse training schools so that graduates can fully meet the requirements for licensing."

Production of More Efficient Artificial Limbs

Major M. J. Fletcher, director of the Army Prosthetic Research Laboratory at Walter Reed Hospital, reports that more efficient artificial limbs than those now in general use by amputees are being produced. In the year since the laboratory was set up new appliances have been devised, some fitted for amputees. The advantages reported are great pressure, smoother operation and easier control, lightness and easier maintenance and appearance almost indistinguishable from that of natural limbs.

Veterans Administration Patients Without Service Connected Disability

Dr. Paul R. Hawley, medical chief, Veterans Administration, informed the House Committee on Veterans Affairs that 82.5 per cent of all patients in veterans' hospitals have no disability or illness connected with service in the armed forces. Dr. Hawley outlined the veterans' medical program and said that no veteran with a service connected illness has to wait a single day to get into a hospital for treatment. Plans are under way to build seventy-four new hospitals.

Distribution of Surplus Plasma

The American Red Cross is distributing 1,500,000 packages of plasma declared surplus by the armed forces at the end of the war, officials have announced. More than half has already been allocated to various states. Dr. G. Foard McGinnes, Red Cross vice chairman for health services, states that "this marks the first time in the history of medicine that enough plasma is readily available for normal and emergency needs in civilian medical practice."

Decrease in Illegal Drug Traffic But More Arrests

The enforcement division of the U. S. Treasury Department has reported a drop in the illegal drug traffic but an increase in arrests during 1946. The close of the war and the interruption of supply lines were credited with cutting the drug traffic. There were more than 3,000 arrests for narcotic and marihuana law violations in 1946 compared with about 2,000 in 1945.

Bethesda Becoming "Health Center of the World"

Bethesda, Md., home of the Naval Medical Center, the National Institute of Health, and the proposed site of atomic research facilities, a mental research institute and other facilities, is being publicized as living up to its historic namesake, the Biblical pool where the ill were healed. The town is called "Health Center of the World."

Medical Economics

FUNDAMENTAL REQUIREMENTS OF INSURANCE APPLIED TO VOLUNTARY PREPAYMENT MEDICAL CARE PLANS

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The physician has a professional interest in the success of voluntary prepayment medical care plans because they demonstrate the determination of his profession to provide a sound method of budgeting the costs of better medical care. As a citizen of the community, he has an interest in their success because they offer the best way of solving, on a democratic basis, the difficult social and economic problems created by the irregularity in the family's need for the services of physicians. As these plans develop, the physician will come to look to such plans for a more or less substantial part of his income. He will want to be certain that they will be able to fulfil their obligations.

Successful voluntary prepayment medical care plans must follow the sound basic requirements of insurance—requirements which have been discovered and tested by generations of experience in other fields and which have endured to guide the medical profession in extending the benefits of medical service. Furthermore, not all economic risks are insurable.

Every physician should familiarize himself with the few basic requirements for the successful operation of any such insurance plan. He will want to discuss these requirements with his colleagues and with others in the community who are interested in making adequate medical care available at a reasonable cost. Finally, he will want to use his influence to make certain that the plan with which he is connected or which is being planned in his community meets these seven basic requirements:

1. *Laws of Mathematical Probability.*—All insurance is based on the ability to predict, with a high degree of accuracy, just how often a certain event may occur. The first essential requirement of health insurance, then, is that there shall exist laws of mathematical probability which apply. The laws of probability are well developed and will apply to health insurance if the other essential conditions of insurance actually are met.

2. *Insurable Interest.*—A second requirement of insurance is that the person must stand to lose financially by the occurrence of the event against which he wishes to be insured. Every one knows that one cannot buy a fire insurance policy on a building which one does not own. One cannot insure the life of a total stranger in whose welfare one has no personal interest. This requirement is known as that of insurable interest. Since any one subscribing to a health insurance plan can be assumed to be financially interested in the health of himself and his family, this requirement can be met.

3. *A Large Number of Independent Risks.*—A fire insurance company could not afford to concentrate its entire business in a single congested area of a city which might be wiped out by a single blaze. It is necessary that such a company spread its risks over a large number of individual buildings located over a wide area. In this way the company is risking the occurrence of a large number of separate fires rather than a single totally destructive one. By the same token, a prepaid medical service plan cannot afford to limit its membership to a group of employees or families working or living so close together that a single epidemic might cause a high percentage of the premium payers to require medical service at the same time. The third requirement, then, is that there shall be a large number of policyholders scattered over a wide enough area so that it is unlikely that any substantial percentage of persons will demand medical service at any one time.

4. *Importance of the Risk.*—Actuarially, it would be possible to predict the occurrence of, and to offer insurance against, becoming bald at the age of 35. Except in the occasional case of some one such as an actor, however, it is doubtful that any one would consider a risk of this kind sufficiently important to warrant paying the cost of operating an insurance business for such a purpose. Health, on the other hand, is important enough to every one to justify the payment of premiums sufficiently large to provide medical care and to defray the operating cost of the plan. This is true also in the case of prepayment plans which offer only surgical benefits, since a substantial number of the cases in which sickness proves an overwhelming burden on the patient's pocketbook involve surgical service.

5. *Uncertainty of Occurrence.*—It is not sound to attempt to use insurance to guard against something that is certain to occur. For instance, it would be unsound to attempt to use insurance to guard against the depreciation of a building. Buildings are certain to depreciate. If a policy against depreciation were offered, the premiums charged would have to be high enough to meet the total cost of depreciation plus the cost of operating the insurance company. For this reason, sound business practice has established the plan of setting aside a certain amount each year to meet depreciation costs, thus avoiding the necessity of paying the additional operating costs of an insurance business.

An all inclusive health insurance policy approaches this limitation of certainty. It is almost certain that any given family will need the services of a physician three or four times a year. Any attempt to cover these usual and minor expenses for medical care, then, actually violates this requirement of uncertainty of occurrence. Rarely does insurance meet the full amount of the loss in any kind or type of insurance. Since we are dealing with something that is almost certain to occur, the policyholder would be just "trading dollars" with the health insurance plan which covered all expenses. The premium in such cases must be large enough to cover the cost of the initial visits which the policyholder is almost certain to require each year—plus the cost of operating the plan—plus the necessary amount to build up a reserve to meet the occasional severe illness. Therefore the policyholder is actually paying more for these initial visits than he would pay if he dealt directly with his physician for these minor needs. In order to provide adequate funds to meet these needs, plus operating expenses, plus reserve for the occasional severe illness, the plan's premiums must be so high as to discourage widespread participation. If they are not, the time will come when the plan will have so exhausted its resources in meeting the costs of minor illnesses that it will be unable to meet the expenses of the major one. Compulsory sickness insurance systems in other countries specify a waiting period of three to fourteen days. Witness also the $25 deductible provision in the automobile collision insurance policy.

By way of illustration, there is no actuarial reason why a man of 85 should not buy a life insurance policy. However, it is not practical for him to do so because such a policy probably would cost something like $900 in a single premium plus the percentage of operating cost of the company in order to obtain a policy for $1,000. The reason is that at age 85 death is certainly so near that insurance against it is unsound economically.

6. *The Insurance Itself Must Not Immeasurably Increase the Risk.*—If there were no arson laws for the punishment of persons proved guilty of incendiarism, it is highly probable that fire insurance companies would be unable to operate. It would be too simple for a person to take out a fire insurance policy and then to set fire deliberately to the building in order to collect the insurance. In such a case the issuance of the insurance policy would have increased the risk of destruction of the building by fire, since the owner certainly would not have burned his property unless he had some hope of extra compensation.

We must examine this requirement carefully in considering plans for health insurance. Will a family which has a health insurance policy make greater demands on its physician than it would make if it did not have such a policy? Unlike the case of incendiarism, there are no laws to prevent persons from making unnecessary demands on their physician for his services. However, if the number of extra calls on a physician due to the issuance of the health insurance policy is increased to a degree which can be measured and predicted, then it still is possible to determine the probable cost of operation and feasible

to issue such policies. If the increase cannot be measured and predicted, the risk cannot be insured. (It must be remembered that if the increase in risk on this basis made loss almost certain, it would violate requirement 5, even though it could be measured and predicted.)

7. The Risk Must Be Measurable.—This is by far the most important requirement of insurance. It means simply that it must be possible to determine in advance just how frequently losses are likely to occur, just how great those losses are likely to be in the aggregate and for each risk so that the correct premium can be determined. In health insurance it means that it must be possible to figure out in advance just how much the total doctor bill for each thousand insured persons or families is likely to be.

There are a number of clear examples of violations of this fundamental requirement. For instance, there were the mortgage guaranty companies which flourished in New York State in the 1920's. For one half of 1 per cent or more of the interest paid, they agreed to pay interest and principal of the mortgage if the borrower was unable to do so. Everything went well as long as times were good and a relatively few borrowers defaulted. In the 1930's, however, when the depression struck, borrowers defaulted in such great numbers that these insurers were unable to meet their obligations out of their reserves. The difficulty here was that it is impossible to predict when there will be a great depression or how many borrowers will default on their payments.

Another illustration of the violation of this requirement is the experience that life insurance companies had with the disability provisions which they issued in the 1920's. This special rider on life insurance policies provided for the payment of $10 monthly per thousand dollars of insurance in the event of disability. Disability usually was defined as the inability of the person to perform his duties. When widespread unemployment, financial bankruptcy and unproductive business operations came in the 1930's, great demands were made on this disability provision. Some of these demands were genuine because of sickness or worry. Undoubtedly, however, there was a large amount of malingering on the part of persons who found it more profitable to remain at home drawing benefits than to attempt to return to unprofitable business operations or nonexistent employment. The insurance companies lost heavily and ceased to write such policies.

Another example is unemployment compensation if viewed as insurance. It will be remembered that the late President Roosevelt always was very careful to refer to it as unemployment compensation rather than unemployment insurance. The fact is that it is not insurance because it violates this essential principle that the risk must be measurable. Who can measure how long the next protracted period of mass unemployment will be? Who knows when it will come? Who can tell how much prosperity will intervene during which period wage earners will be paying into the reserves of the fund? Since none of these things can be measured, it is impossible to tell what the total risk may be in the long run, and it is therefore impossible to tell how much reserve will have to be amassed to meet that risk.

This requirement that the risk must be measurable is highly important to the physician who is concerned with the success of prepayment medical care plans. It is not enough that the plan has completed one year, or five years, with a reserve fund on hand. It must be strong enough to weather a great depression during which the loss and expense ratios might rise rapidly even though the general health situation was favorable. Reserve funds developed in prosperous times will doubtless be needed to offset unpredictable increases in loss and expense ratios during depressions. For this reason the "pro rata" feature is excellent; it provides that the participating physicians must accept less than their approved fees if the income of the plan for the year is less than the amount of the total approved fees. This transfer of some of the risk, especially in a year of depression, from the plan to the participating physicians makes them underwriters and should make their plan a tower of strength during periods of unemployment. This feature would enable any plan to comply fully with this seventh essential requirement of insurance because, even though certain health risks may not be measurable or predictable, the plan is secure. Premiums need not be equal each year to the total approved fees of the participating physicians for services rendered members during that year. The physician is, in the language of the insurance world, a reinsurance underwriter. Without this feature a plan might be a house of cards instead of a tower of strength at the bottom of the business cycle. Although the "pro rata" feature may be hard on the doctor, it makes the plan stronger than it would be if it merely complied with the seven fundamental requirements of insurance. The stronger the plan, the better it is for the doctor.

The experience amassed by prepayment medical care plans since 1940 does not cover a sufficiently long period of time or a sufficiently broad section of the population during depression and prosperity to permit us to measure with accuracy the risk that might be involved in the event of a serious epidemic or a great depression. The "pro rata" feature enables our medical care plans to meet this essential requirement of sound insurance practice *now* without waiting to accumulate broad and detailed actuarial experience.

COMMENT

I have set forth the seven characteristics of an insurable economic risk. I believe that voluntary prepayment medical care plans, carefully designed and operated, comply with these requirements forged out of several centuries of insurance experience. The most serious mistake which doctors could make would be to claim too much for this great economic and social institution of a free society. As Marshall de Villars said when taking leave of Louis XIV, "May God defend me from my friends; I can defend myself from my enemies."

Medical Legislation

MEDICAL BILLS IN CONGRESS

Streptomycin

A bill introduced by Senator White, Maine, S. 445, at the request of the Federal Security Administrator, proposes to amend the **Federal Food, Drug and Cosmetic Act** of June 25, 1938, as amended, by providing for the certification of batches of drugs composed wholly or partly of any kind of streptomycin or any derivative thereof. Two other drugs are now certified by the Food and Drug Administration, insulin and penicillin.

Medical Department of the Army

Companion bills propose to revise the Medical Department of the Army, S. 504, introduced by Senator Gurney, South Dakota, and H. R. 1673, introduced by Representative Bolton, Ohio. Among other things, this legislation would establish in the Medical Department of the regular Army a Medical Service Corps to consist of a **Pharmacy Section, a Medical Allied Science Section, an Optometry Section and such other sections** as may be deemed necessary by the Secretary of War.

Federal Grants-in-Aid to State and Local Governments

A resolution introduced by Senator Morse, Oregon, S. 61, proposes to authorize a duly appointed subcommittee of the Committee on Labor and Public Welfare to make a study with respect to existing and proposed federal grants to state and local governments for **welfare, education and health programs** and to report to the Senate from time to time the results of its studies and investigations, together with such proposed legislation and other recommendations as it may deem desirable.

Medical Care for Dependent Members of Veterans' Families

A bill introduced by Senator Pepper, Florida, as S. 465, proposes that the **dependent members of the family of a veteran of any war** of the United States shall be furnished proper medical examination, medical care, treatment, hospitalization, dispensary, convalescent care necessary and reasonable after-care, welfare, nursing and such other services as may be necessary for the maintenance of good health and the prevention of illness, such service to be made available by the Administrator of Veterans' Affairs at hospitals, domiciliary institutions, outpatient dispensaries or stations, or such other facilities available to or contracted for by the administrator, if suitable accommodations or services are available. Such service will be rendered at a per diem or other reasonable cost to such dependents concerned.

Miscellaneous

A bill introduced by Representative Fellows, Maine, H. R. 1589, would provide that all the provisions of **all laws administered by the Veterans Administration** which extend benefits to any woman who served honorably as a nurse, chief nurse or superintendent of the Nurse Corps under contract with the United States for ninety days or more between April 21, 1898 and Feb. 2, 1901 be extended to any man who served honorably in any such capacity under contract with the United States for ninety days or more between such dates.

Representative D'Alesandro, Maryland, proposes by H. R. 1537 to authorize the erection of a United States Veterans Administration general **medical-surgical hospital facility at Baltimore.**

The Civil Service Act would be amended by a bill introduced by Senator Ellender, Louisiana, as S. 459, to provide that **no person shall be discriminated against** in any case because of his or her impaired hearing, in examination, appointment, reappointment, reinstatement, reemployment, promotion, transfer, retransfer, demotion or removal, with respect to any position the duties of which, in the opinion of the head of the agency concerned, may be efficiently performed by a person with impaired hearing.

STATE LEGISLATION

Arkansas

Bill Introduced.—H. 43 and H. 87 propose to require each applicant for a **marriage license** to present a certificate from a duly licensed physician stating that the applicant has undergone a standard serologic test for syphilis and has been found free from syphilis in a communicable stage.

Bill Passed.—H. 18 passed the house January 22. It proposes to require every physician at the time of the first examination to take or cause to be taken a sample of the **blood of a pregnant woman** and submit the same to an approved laboratory for a standard serologic test for syphilis.

California

Bills Introduced.—A. 717, to amend the business and professions code, proposes to authorize the issuance of a **naturopathic physician's certificate** which would authorize the holder "to practice naturopathy, which includes physiotherapy, manual, mechanical and manipulative therapy, psychoanalysis, psychotherapy, electricity, nonnarcotic herbs, supplemental foods, vitamins, air, water, diet, massage, endocrinology, biochemistry, accident and occupational therapy and all other natural methods consistent with naturopathic science." A. 797, to amend the probate code, proposes that every person of sound mind over the age of 18 years may by will **dispose of the whole or any part of his or her body** to a teaching institution, university, college or legally licensed hospital, either for use as such institution, university, college or hospital may see fit or for use as expressly designated therein. S. 353 proposes the enactment of a **hospital survey and** construction act requiring a statewide survey of hospital facilities and a program for the construction of needed additional facilities, as well as the establishment of an Advisory Hospital Council. The survey would be administered by the State Department of Public Health, which would be appointed as the state agency to accept money received from the federal government for state assistance in either survey or construction programs.

Connecticut

Bill Introduced.—H. 146 proposes to authorize the state department of health to obtain **human blood from donors** or from agencies, to process it and to provide reserves of blood or blood derivatives in various parts of the state.

Massachusetts

Bills Introduced.—H. 706 proposes that the College of Physicians and Surgeons shall **not register any new students** other than persons who have served in the armed force of the United States during World War II and been honorably discharged therefrom. H. 947 proposes that every physician registered to practice medicine and surgery who obtained his medical degree from a medical school registered in the state at the time he was licensed **shall be allowed to practice** his profession in every public hospital in the state supported by public funds and be able to treat patients medically or surgically in such hospitals, and that the right to so practice shall not be denied because the physician is not a member of a private medical society or because of religion, nationality or race. H. 1132 proposes the enactment of a law providing for a voluntary system for the payment of hospital, surgical operation, sickness and bodily injury and maternity **benefits to employees.** H. 1619 proposes the enactment of a cash sickness compensation act. S. 167, to amend the law relating to hospitals, proposes that hospitals, except those established by the commonwealth or any political subdivision thereof and those in which not less than one third of the patients are charity patients, **shall be liable in tort for damages** to patients resulting from acts of negligence of the agents or servants of the hospital. The benefits of this proposal would not accrue to charity patients. S. 169, to amend the **workmen's compensation act,** proposes that the record of any examination, diagnosis, prognosis or treatment of an employee shall not be furnished, nor shall any of the information contained therein be furnished or disclosed, to any employer or insurer by any doctor, physician, surgeon, nurse or other person unless the employee consents.

Missouri

Bills Introduced.—H. 63, to amend the prenatal examination law, proposes that the **examination of a pregnant woman** for the presence of syphilis shall be mandatory rather than just with the consent of the woman. H. 64, to amend the law relating to the **control of contagious diseases** among school children, proposes to authorize the school board to require that all children show proof of immunity against diphtheria and smallpox.

Nebraska

Bill Introduced.—Bill No. 160 proposes the enactment of a state hospital survey and construction act requiring **an inventory of existing hospitals** and a program for the construction of needed additional facilities. The proposal would also provide for compliance with the requirements of the federal hospital survey and construction act and regulations thereunder.

New Mexico

Bills Introduced.—S. 12 proposes the enactment of a state hospital survey and construction act requiring **a survey of existing hospitals** and a program for the construction of needed additional facilities. The proposal also provides for compliance with the requirements of the federal hospital survey and construction act and regulations thereunder. S. 21, to amend the food and drug act, proposes that **drugs to be sold at retail** and containing any quantity of aminopyrine, barbituric acid, cinchophen, dinitrophenol, sulfanilamide or their derivatives shall be subject to certain labeling provisions unless sold on a written prescription signed by a member of the medical, dental or veterinary profession licensed by law to administer such drug. S. 51 proposes **to define a clinic** as an establishment where patients are admitted for special study and treatment by a group of physicians practicing medicine together and proposes further that no person or group of persons shall use the word clinic in connection with any establishment or office which does not come within such definition. S. 52 proposes to require all persons licensed to practice any of the healing arts to clearly **designate the school of medicine** or practice which such person is licensed to engage in and further provides that failure to comply with such restriction would constitute unprofessional conduct. S. 53 proposes to authorize the use of the **injunctive process to** restrain the illegal practice of medicine or the healing arts.

New York

Bills Introduced.—A. 493 proposes the enactment of a comprehensive statewide system **of health insurance.** A. 661, to amend **the medical practice act,** proposes that such act shall not apply to a corporation organized under the insurance law and employing duly licensed physicians or entering into contracts with duly licensed physicians, or with partnerships or groups of duly licensed physicians, to practice medicine on its behalf for persons insured under its contracts or policies. A. 662, to amend the section of **the medical practice act** setting forth grounds for the revocation of a license, proposes that the prohibition against advertising under a false or assumed name shall not apply to persons constituting a partnership or group of physicians who have an agreement with a nonprofit corporation created under the insurance law to provide medical care for insured persons of such corporation. A. 663, to amend the section of **the medical practice act** relating to the revocation of a license, proposes that nothing in the act shall prohibit physicians from practicing medicine as partners or in groups nor from pooling fees and monies received, either by the partnerships or groups or by the individual members thereof, for professional services furnished by any individual physician, member or employee of such partnership or group, nor shall the physicians constituting the partnerships or groups be prohibited from sharing, dividing or apportioning the fees and monies received by them or by the partnership or group in accordance with a partnership or other agreement.

Pennsylvania

Bill Introduced.—S. 43 proposes that it shall be unlawful for any doctor, hospital, nurse or other person or persons practicing medicine or affiliated with the medical profession to perform **blood transfusions** without first having ascertained by a Wassemann test that the blood of the donor is free from any venereal disease.

Utah

Bills Introduced.—H. 88 and S. 130 propose to authorize the issuing of licenses to practice as a **naturopathic physician** without the use of drugs and surgery or as a naturopathic physician and surgeon in accordance with the tenets of a professional school of naturopathy recognized by the department of registration, etc. Naturopathy is not defined by the proposal. S. 104 proposes an act to require the licensing, inspecting and regulating of hospitals and the appointment of a **hospital advisory council.**

Coming Medical Meetings

American Association for the Study of Goiter, Atlanta, Ga., April 3-5. Dr. Thomas C. Davison, 478 Peachtree St., N. E., Atlanta 3, Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, February 27. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Secretary.

Central Surgical Association, Chicago, Feb. 20-22. Dr. Walter G. Maddock, 250 East Superior St., Chicago, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, March 4-7. Dr. Willard O. Thompson, 30 N. Michigan Blvd., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 17-20. Dr. Glenn D. Earlson, 1133 Medical Arts Bldg., Dallas, Secretary.

Michigan Postgraduate Clinical Conference, Detroit, Book-Cadillac Hotel, March 12-14. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Secretary.

Missouri State Medical Association, Kansas City, March 30-April 2. Mr. Thomas R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Executive Secretary.

New Orleans Graduate Medical Assembly, New Orleans, Feb. 24-27. Dr. Max M. Green, 1430 Tulane Avenue, New Orleans 13, Secretary.

Pacific Coast Surgical Association, Seattle, Feb. 17-18; Victoria, B. C., Feb. 19-21. Dr. F. L. Reichert, Stanford University Hospital, San Francisco, Secretary.

Southwest Allergy Forum, Shreveport, La., March 31-April 1. Dr. Sim Hulsey, 505 Medical Arts Bldg., Fort Worth, Texas, Secretary.

Tennessee State Medical Association, Memphis, April 8-10. Dr. W. M. Hardy, 706 Church St., Nashville 3, Secretary.

GOVERNMENT SERVICES

ARMY

CELEBRATION OF ARMY WEEK

The War Department announces that Army Week will be observed for the first time April 6-12. The traditional Army Day celebration on April 7 will be held as usual and sponsored by the Military Order of the World Wars. The purpose of Army Week is not only to honor America's soldiers but to explain to the public the need for a well trained, efficient army of volunteers to discharge its duties as this country joins all United Nations in building permanent world peace; and to bring the people and the Army closer together in our national community. The theme is "A Strong America Is A Peaceful America." The War Department will conduct activities during Army Week in many cities and towns of the country. Ground forces and Air Forces will put on exhibits and demonstrations. Army posts and installations and National Guard armories will have "open house" on certain days. Many civic and other organizations will join in the celebration.

SOLDIERS' CHRISTMAS MAIL LOST AT SEA

About 2,800 sacks of Christmas mail for military personnel in Korea were lost at sea, the Adjutant General has announced. The sacks contained parcel post, magazines and newspapers only, no letter mail being lost. This mail was aboard the *Lakeland Victory*, which left San Francisco on November 27. The ship encountered a hurricane about 1,700 miles from Korea, sustaining severe damage and loss of the mail. Post offices will accept claims covering the loss or damage of insured parcels mailed to military personnel overseas after four months have elapsed from the date of mailing. Persons whose packages may have been affected may apply to their local postmasters for further information after the four month waiting period has elapsed.

ESTABLISH VENEREAL DISEASE CONTROL COUNCIL

The War Department has announced the establishment of a Venereal Disease Control Council for the purpose of insuring that all possible control measures are employed to reduce venereal disease in the Army. The council will meet each month to consider such problems, to develop standard educational and control measures and to review control procedures adopted in the field. The council is authorized to take immediate corrective action when reports indicate unsatisfactory conditions which are beyond the control of the local or army commander and to establish policies for the reduction and control of venereal disease based on research, surveys and field experience. The members of the new council are Major Gen. Willard S. Paul, chairman; Major Gen. Norman T. Kirk, the Surgeon General; Major Gen. Floyd L. Parks, chief, Public Relations Division; Major Gen. Luther D. Miller, chief of Army Chaplains; Brig. Gen. Russel B. Reynolds, chief, Special Services Division; Brig. Gen. B. M. Bryan, Provost Marshal General, and the recorder, Lieut. Col. John J. Easton. Additional members, representatives of the Secretary of War, Army Ground Forces and Army Air Forces, were to be named early in January.

As previously announced, the Army sent sixteen selected medical officers to attend classes in venereology at the University of Pennsylvania for two months, after which they will return to their stations and be followed by another class of selected medical officers. Such courses have become necessary, General Kirk said, to replace the specialists being separated from the service. While these courses will not produce specialists in venereal disease management, General Kirk said, this is a step in the right direction. The courses are being conducted by Dr. John H. Stokes, professor of dermatology-syphilology in the Graduate School of Medicine at the University of Pennsylvania.

ARMY AWARDS AND COMMENDATIONS

Colonel Albert W. Greenwell

The Legion of Merit was recently awarded to Col. Albert W. Greenwell, M. C., U. S. Army, of West Point, N. Y. The citation stated that as commanding officer, Regional Hospital, Fort Jay, New York, from July 1943 to June 1945, Colonel Greenwell rendered outstanding service. When this installation, originally a post hospital, was designated as a regional hospital, he speedily and effectively reorganized it to function as such without interruption of any of the regular services. He put into effect policies and procedures for expediting the processing of hospital cases without lessening the thoroughness of professional care and developed a comprehensive plan for emergency hospital service. Dr. Greenwell graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1916 and entered the service Aug. 28, 1917.

Colonel William P. Corr

The Legion of Merit was recently awarded to Colonel William P. Corr, M. C., A. U. S., of Riverside, Calif. The citation read as follows: "For meritorious service at Dibble General Hospital, Menlo Park, Calif., from October 1943 to June 1945. As Chief of the Professional services he organized this section on a high plane. He displayed at all times a wide knowledge of all phases of internal medicine, quiet yet forceful leadership and high ideals of the practice of medicine." As interim commanding officer of the hospital when near its peak load, he demonstrated administrative ability as well, and maintained the hospital in splendid condition. Dr. Corr graduated from Rush Medical College in 1924 and entered the service April 16, 1941.

Colonel Robert Skelton

The Legion of Merit has been awarded to Col. Robert Skelton, M. C., U. S. Army, the citation explaining that Colonel Skelton displayed outstanding ability as commanding officer, San Francisco Medical Depot, from December 1941 to August 1945, in solving the numerous problems of storage and distribution of medical supplies. His exceptional achievements contributed materially to the maintenance of a high standard of efficiency in depot operations and medical supply activities. Dr. Skelton graduated from the University of Pennsylvania Medical School in 1908 and entered the military service Feb. 1, 1911.

Colonel Paul A. Campbell

The Legion of Merit was recently awarded to Col. Paul A. Campbell, Chicago. The citation read as follows: "As Director of Research, Army Air Forces School of Aviation Medicine, from May 1942 to October 1945, Colonel Campbell directed a research program which provided solutions to hundreds of medical problems associated with aviation. His outstanding professional ability and extraordinary achievements reflect great credit on himself and the armed forces of the United States." Dr. Campbell graduated from Rush Medical College in 1928 and entered the service Nov. 29, 1940.

Colonel John C. Woodland

The Legion of Merit was recently awarded to Col. John C. Woodland, M. C., now of San Antonio, Texas. Colonel Woodland performed exceptionally meritorious services as chief of medical service and commanding officer, Brooke General Hospital, from December 1941 to March 1946. The citation emphasized his outstanding leadership and professional ability as reflected in the fine medical service provided by the hospital. Extensive research carried out under his supervision resulted in important discoveries in the field of virus and rickettsial diseases. Dr. Woodland graduated from the University of Maryland School of Medicine in 1915 and entered the service Feb. 25, 1918.

Lieutenant Colonel Raymond K. Farnham

The Legion of Merit was recently awarded to Lieut. Col. Raymond K. Farnham of Scarsdale, N. Y., for outstanding service as chief, disposition and retirement branch, physical standards division, Office of the Surgeon General, from January 1944 to October 1945. The citation emphasized his exceptional skill and judgment in the development and compilation of the Medical Section of TM 12-245, a manual procedure for members of army retiring boards to follow in the consideration of officer personnel brought before them. This officer, by his knowledge of medicine and surgery and his comprehensive understanding of the regulations, statutes and public laws governing the retirement of officer personnel, gave expert advice and indoctrination to members of retiring boards throughout the United States as well as to high officials in the War Department, members of Congress and officers being considered for retirement. Dr. Farnham graduated from the University of Vermont College of Medicine, Burlington, in 1926 and entered the service May 6, 1942.

Lieutenant Colonel William Leigh Cook Jr.

The Legion of Merit was recently awarded to Lieut. Col. Leigh Cook Jr., M. C., A. U. S., of Alexandria, Va. The citation states that, while serving as assistant director and later as director, Occupational Health Division, Office of the Surgeon General, from October 1942 to September 1945, he contributed immeasurably to the high standards characteristic of the industrial medical program in the Army. He was a prime figure in establishing a successful occupational health program in the arsenals and industrial plants operated by the United States Army. Through his unusual ability, industry and loyal devotion to duty he promoted a program to increase the health and efficiency of over 900,000 vital war workers. Dr. Cook graduated from Columbia University College of Physicians and Surgeons, New York, in 1934 and entered the service May 7, 1942.

Lieutenant Colonel Walter E. Barton

The Legion of Merit was recently awarded to Lieut. Col. Walter E. Barton, Worcester, Mass. The citation read as follows: "He served in various assignments in the office of the Surgeon General, Washington, D. C., from April 1943 to June 1945 and was largely responsible for the organization and early development of the Reconditioning Program for convalescent army patients. His specific services in shaping the doctrine and policy of the four interrelated services of occupational therapy, rehabilitation of the war blind and deafened, general reconditioning and reconditioning of neuropsychiatric patients were instrumental in furthering the standard of professional medical care and reflect the highest credit on himself and the Army Medical Corps." Dr. Barton graduated from the University of Illinois College of Medicine in 1931 and entered the service Sept. 10, 1942.

Lieutenant Colonel Leonard B. Barnard

The Legion of Merit has been awarded to Lieut. Col. Leonard B. Barnard, M. C., A. U. S., of Oakland, Calif., for performing exceptionally meritorious services as assistant chief and later as chief of the orthopedic section of the surgical service, Woodrow Wilson General Hospital, Staunton, Va., from March 1943 to February 1946. The citation stressed Colonel Barnard's outstanding professional skill in performing difficult operations, his effective training and supervision of his subordinates, and the consideration he showed for the hundreds of battle casualties under his care, which were largely responsible for the well-being and high morale among the patients and staff in the installation. Dr. Barnard graduated from Stanford University in 1927 and entered military service on Jan. 11, 1943.

Lieutenant Colonel Thomas Hale Ham

The Legion of Merit has been awarded to Lieut. Col. Thomas H. Ham, M. C., A. U. S., of Boston. The citation called attention to the breadth of scientific attainment displayed by Dr. Ham as a member of the Medical Division, Office, Chief of Chemical Warfare Service, from September 1943 to January 1946. His loyal devotion to duty and expert professional abilities contributed immeasurably to the successful achievement of the wartime mission of the Chemical Warfare Service. Dr. Ham graduated from Cornell University Medical College in 1931 and entered into the military service on Sept. 4, 1943.

Major Samuel P. Harbison

The Legion of Merit has been awarded to Major, later Lieut. Col., Samuel P. Harbison, M. C., A. U. S., of Pittsburgh, who served as chief, general surgery, 21st General Hospital, in Africa, Italy and France from May 1943 to April 1945. The citation called attention to his unflagging energy, precise skill and keen scientific interest, which enabled him to improvise equipment and improve technics with the result that many wounded personnel were saved from death or impairment. Dr. Harbison graduated from Cornell University Medical College in 1936 and entered the military service in January 1942.

Major Manfred Guttmacher

The Legion of Merit was recently awarded to Major Manfred Guttmacher, M. C., A. U. S., of Baltimore, who as supervisor, Neuropsychiatry Consultants Division, Surgeon General's Office, from August 1944 to November 1945 rendered services of great value in preventive psychiatry and in the salvage of manpower. The success of the army psychiatric work program was stated in the citation to have reflected his outstanding professional skill, clinical ability and sound judgment. Dr. Guttmacher graduated from Johns Hopkins University School of Medicine, Baltimore, in 1923 and entered the service Sept. 30, 1942.

Major Russell H. Barnes

The Bronze Star Medal was recently awarded to Major Russell H. Barnes, M. C., A. U. S., of Mansfield, Ohio. The citation stated that as flight surgeon of the 320th Bombardment Group (M) and the 301st Bombardment Group (H) in North Africa Major Barnes performed meritorious service from November 1942 to May 1943, exhibiting outstanding professional knowledge, sound judgment and unusual energy in rendering invaluable service although handicapped by physical suffering. Dr. Barnes graduated from the Hahnemann Medical College of Philadelphia in 1933 and entered the military service April 28, 1941.

Major William J. Cromartie

The Legion of Merit has been awarded to Major William J. Cromartie, M. C., A. U. S., of McKinney, Texas, formerly of Nashville, Tenn., for performing exceptionally meritorious service as senior medical member of an intelligence mission in the European Theater of Operations from August 1944 to September 1945. The complete success of the mission, often under enemy fire, was attributed in the citation largely to his aggressive leadership, organizational ability, sound judgment and courage. Dr. Cromartie graduated from Emory University Medical School in 1937 and entered the military service Aug. 11, 1942.

Captain Charles W. Asbury

The Bronze Star Medal was recently awarded to Capt. Charles W. Asbury, M. C., A. U. S., of Hamilton, Ohio, for meritorious achievement in connection with military operations from Feb. 2, 1944 to June 8, 1945 and in recognition of research work in the treatment of resistant dermatoses of the Southwest Pacific Area. Dr. Asbury graduated from the University of Cincinnati College of Medicine in 1942 and entered the service July 15, 1943.

CORRECTIONS

Date of Entry into Service.—The date of entry into the service of Lieut. Col. Harold R. Hennessy as published in THE JOURNAL, February 1, page 330, should have been Nov. 1, 1940.

Award to Captain Saul Steinberg (0483911).—The award of the Army Commendation Ribbon to Capt. Saul Steinberg, M. C., A. U. S., published in THE JOURNAL, January 4, page 47, was to Capt. Saul Steinberg of Boston and not to Capt. Saul Steinberg of Norristown, Pa. Captain Steinberg of Boston graduated from St. Louis College of Physicians and Surgeons in 1926; he has been with the Boston Health Department since 1932 and in private practice in Boston since 1926. He entered the service in 1942 and was recently awarded also a Certificate of Commendation by the commanding general, Army Service Forces, 9th Service Command, War Department Personnel Center, Camp Beale, California, "for strict attention to duty and performing his job in a superior manner as medical inspector from the period July 15, 1945 to Feb. 25, 1946.

NAVY

SCHOOL OF AVIATION MEDICINE AND RESEARCH

Although the Naval School of Aviation Medicine has actually been in existence since 1939 and has trained about 1,400 doctors as flight surgeons and aviation medical examiners, it had never been officially designated as an activity until last October 15, when the Secretary of the Navy established the U. S. Naval School of Aviation Medicine and Research at the Naval Air Station, Pensacola, Fla. The school will continue to train young medical officers in aviation medicine and will continue its work in aviation medicine and research. Capt. Bruce V. Leamer (MC), U.S.N., has been named officer in charge.

LECTURE AT NAVAL MEDICAL CENTER

The fifth in a series of guest lectures at the Naval Medical Center, Bethesda, Md. sponsored by the Naval Medical School, was presented January 31 by Dr. Edward A. Strecker, chairman, Psychiatry Department, University of Pennsylvania Medical School, Philadelphia, on "Emotional Immaturity." Dr. Strecker is also consultant to the Surgeons General of the Army and Navy and special adviser to the Secretary of War. A cordial invitation to these lectures is extended to all physicians and medical officers in the District of Columbia and Montgomery County.

NEW ASSIGNMENTS

Rear Admiral Clarence J. Brown has been assigned as general inspector of the Medical Department and chief of the Research Division, succeeding Rear Admiral John Harper, who will become District Medical Officer for the 13th Naval District, with headquarters at Seattle.

Capt. Eric G. Hakansson has been appointed chief of the Research Division in the Bureau of Medicine and Surgery and will continue to be commanding officer of the Naval Medical Research Institute, Bethesda, Md.

Rear Admiral Carlton L. Andrus has been appointed Medical Officer in Command of the U. S. Naval Medical Center, Guam.

Rear Admiral John C. Adams formerly assistant chief of the Bureau of Aviation Medicine and Medical Military Specialties, has been appointed medical officer for the 5th Naval District, Norfolk, Va.

VETERANS ADMINISTRATION

HOSPITALS IN MEMPHIS

The management of the two veterans' hospitals in Memphis, Tenn., the Kennedy and the smaller hospital on Lamar Avenue, has been consolidated and Dr. Hugh L. Prather has been assigned as manager. Dr. Horace C. Dodge, formerly manager of the Lamar Avenue hospital, is reported to have retired at the beginning of the year after many years of service with the Veterans Administration.

WOMEN WAR VETERANS

Women veterans are entitled to the same medical care as male veterans, and in addition they may receive hospitalization for non-service connected disabilities in civil hospitals when government facilities are not available. Under present laws male veterans cannot secure hospitalization in private hospitals or treatment by private doctors at government expense for non-service connected ailments. This additional benefit is given women veterans as a result of an executive order issued in 1933, when only a few women veterans of World War I were eligible for Veterans Administration medical care. It was thought then to be more economical to authorize treatment and hospitalization for them from private physicians and in private hospitals than to construct special facilities in VA hospitals.

There were 1,339 women war veterans who were patients in VA hospitals, or in other hospitals under contract to VA on November 30, 1946, and in addition there were 212 women patients in VA homes. Of the total, 890 were veterans of World War II and the remainder veterans of World War I. The potential load of women war veterans is estimated at 350,000. The Veterans Administration has on its pension and compensation rolls at present 14,989 women veterans, of whom 1,456 are non-service connected.

PERSONAL

Dr. Harold F. Stolz, formerly of Saginaw, Mich., and Albuquerque, N. M., has assumed his duties in the department of medicine and surgery at the Veterans Administration Facility, Tucson, Ariz. From 1942 to 1945 he served as associate physician, cardiorespiratory diseases, Henry Ford Hospital, Detroit.

PUBLIC HEALTH SERVICE

PUBLIC HEALTH NURSING WEEK

A tribute will be paid to the services of the public health nurses of America in the observance of Public Health Nursing Week, April 20-26. The observance aims to spread the message that public health nursing services are for everybody and are not limited to those in lower income brackets; to encourage more nurses to enter the field of public health nursing; to interest more high school and college girls in choosing public health nursing as a career; to help relieve pressure on hospitals by calling attention to the fact that part time professional nursing care is available to people at home; to stimulate the development of organized health services in all areas of the United States, and to inform the people of the broad scope of the work done by the public health nursing services.

More than 20,000 public health nurses are employed in this country by local, state and national agencies. They work for health departments, boards of education and other official agencies and for nonofficial organizations such as tuberculosis associations, insurance companies, industries and visiting nurse associations. There is today one public health nurse to every 6,500 persons in the country. The U. S. Public Health Service in its announcement states that the country needs one public health nurse to each 2,000 of the population in order to render a complete public health nursing service, including bedside nursing in the home. This would require about 45,000 more than is now employed, based on the 1940 census.

Additional information may be secured from the Office of Health Information, Division of Public Health Methods, U. S. Public Health Service, 19th and Constitution Avenue N.W., Washington 25, D. C.

TEMPORARY ASSIGNMENT IN BOLIVIA

Senior Sanitary Engineer John J. Bloomfield, assistant chief, Industrial Hygiene Division, U. S. Public Health Service, has been assigned as special consultant to the Inter-American Affairs labor inspection and control program in Bolivia. He will remain there for two months to assist in the formulation of codes to establish healthful working conditions in industry and in the clarifying of occupational disease compensation laws. The institute, at the request of the Bolivian government, is setting up a program to improve the economic status of workers, particularly miners. Mr. Bloomfield will work with the institute's field party, which has been in Bolivia since 1945. He has been with the Public Health Service since 1923, and for thirteen years he pioneered in investigations of health hazards in industrial work.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

COLORADO

State Society Continues Annual Postgraduate Clinics.—The twelfth annual Midwinter Postgraduate Clinics of the Colorado State Medical Society will be held February 18-21 in Denver at the Shirley-Savoy Hotel. The clinics were suspended during the war years 1943-1945 and were revived in 1946. The first evening of the clinics proper is being given over to a nonscientific program featuring modern developments in the the problems of public relations of organized medicine. An innovation this year will be the technical exhibits.

FLORIDA

Personal.—Dr. Frank V. Chappell, Tampa, director of the Hillsborough County health department, was elected president of the Florida Public Health Association at its recent annual meeting. He succeeds Dr. George A. Dame, Fernandina.

Plane to Spray DDT.—At the request of the citizens of Fort Meyers the Army Air Forces sent a cargo plane fitted with DDT spray dispersal equipment to that area on January 25 to prevent fly breeding, after large numbers of dead fish were deposited by the tides on the beaches and in swamps. The War Department stated that the death of the fish was attributed to a minute sea organism. The plane was to spray the swamp area with a 20 per cent DDT solution in oil, and care was taken in the amount used in order to prevent injury to any form of wildlife.

GEORGIA

New Surgical Pavilion.—A new surgical pavilion in the Whitehead Memorial Room in Emory University Hospital, Atlanta, was dedicated recently. The pavilion was established by Mrs. Letitia P. Evans, Hot Springs, Va., mother of the late Conkey P. Whitehead, Atlanta. The dedicatory address was given by Dr. Alfred Blalock, professor of surgery, Johns Hopkins University School of Medicine, Baltimore.

School for Food Handlers.—Georgia established an educational program for food handlers, restaurant owners and operators, whereby three day food seminars were held last year at Atlanta, Savannah, Augusta, Columbus, Brunswick, Thomasville, LaGrange, Milledgeville, Hinesville, St. Simons and Jessup. There were 16,667 food handlers in attendance. According to the state health department numerous outbreaks of so-called food poisoning have occurred in Georgia as well as in some other states. The U. S. Public Health Service with mobile laboratories is said to have examined 50,000 utensils from 5,400 eating places in 156 American cities and found only 28 per cent free from dangerous numbers of bacteria. One bacteriologist, it is said, examined 54 samples of dish water from typical restaurants and found greater contamination than exists in the average sewer. The federal health agency warns that the amount of disease spread in restaurants is increasing.

ILLINOIS

Resolution of County Society.—The Adams County Medical Society has disapproved the present administration policies of the Blessing Hospital in Quincy, particularly as they are said to apply to the infringement on the private practice of medicine. The society in its resolution pointed out that plans are being made by this hospital to employ full time medical specialists on a salary basis and to sell their services to the patients in the hospital as well as to the general public.

Chicago

Industrial Tuberculosis Survey.—The Tuberculosis Institute of Chicago and Cook County reported February 1 that 13 active cases of tuberculosis and 77 suspected cases were disclosed by recent chest examinations of 5,298 employees in a Chicago manufacturing plant. Dr. Earl E. Kleinschmidt, director of the institute, said that none of the persons found to be infected were aware of the disease.

Hospital Staff Honors Colleague.—A bronze plaque honoring the long service of Dr. Mark T. Goldstine, a member of Wesley Memorial Hospital staff since 1902, was unveiled January 25 at ceremonies at the hospital. He is professor emeritus of gynecology and obstetrics at Northwestern University Medical School and chairman emeritus of the same department at the hospital as well as director of the Davella Mills Foundation Cancer Clinic.

Personal.—Dr. Camillo E. Volini has been appointed superintendent of clinics for the Municipal Tuberculosis Sanitarium, succeeding the late Dr. Edward P. Troy. Dr. Volini has been on the sanitarium staff for many years and since 1940 has been director of field collapse therapy.——Dr. A. C. Ivy, vice president, University of Illinois School of Medicine, Chicago, left early in January for Nuremberg, Germany, to serve as an expert witness and adviser at the trials of Nazi doctors charged with crimes of a medical nature and returned to Chicago, January 28.——Dr. William F. Petersen, University of Illinois College of Medicine, has been appointed director of the newly created department of clinical research at St. Luke's Hospital. ——Dr. John I. Perl, who for several years has been interested in painting as a hobby, has an exhibit at 111 East Delaware Street, which will continue until February 16.

The Third Annual Clinical Conference.—The Chicago Medical Society will hold its third annual clinical conference March 4-7 at the Palmer House. This intensive postgraduate course for the general practitioner will be presented by well known speakers, many from various cities in the United States. Among the subjects included in the morning and afternoon lectures, beginning at 8:30 and 2 o'clock respectively, are the surgical treatment of prostatic disease, causes and treatment of exophthalmos, diagnosis and treatment of the more common types of industrial dermatitis, surgical problems in diabetes mellitus, carcinoma of the uterus, chronic brucellosis, functional disorders of digestion, psychology and the general practitioner and psychosomatic gynecology. In addition there will be three panel discussions, a clinicopathologic conference and round table discussions at each luncheon.

INDIANA

Scholarships for Rural Medicine.—The Indiana State Medical Association is offering six or more scholarships each year for young men and women who wish to study medicine and practice in Indiana. Students who accept the scholarships must agree to be available for private practice in those counties "in which, in the opinion of the committee, medical service is most urgently needed." Principal cost of the scholarships will be borne out of funds appropriated by the council of the association. The scholarship committee is also authorized to accept donations from other sources. The medical association hopes thus to help meet the shortage of physicians in rural areas of the state. Dr. Alfred Ellison, South Bend, is chairman of the medical association council.

KANSAS

Health Officers' Conference.—The Kansas Local Health Officers' Conference was held January 9-10 in Lawrence, Dr. W. Fred Mayes, Topeka, director of local health administration, Kansas State Board of Health, presiding. The afternoon program was devoted to a discussion of the relationship of state consultant nurses to the local health departments, evaluation of nursing personnel and orientation of new nurses.

MASSACHUSETTS

Personal.—Dr. Hugo Muench, former member of the International Health division of the Rockefeller Foundation, and professor of biostatistics at Harvard University School of Public Health, has been appointed head of the department of biostatistics. He is also assistant dean.

Epidemic Among Infants.—Eight infants stricken with diarrhea have died at Cambridge City Hospital in an outbreak of 23 cases reported between December 4 and January 1. Of that number 7 were in Cahill House and 16 in the children's ward of the main building. All babies affected were under 10 months of age, according to Dr. George B. Foster, medical director of the hospital. Earlier a similar outbreak took the lives of 4 infants at Framingham Union Hospital, Framingham, June 2-15. An outbreak at Worcester City Hospital in October was responsible for the deaths of at least 10 babies before it ended in November. The State Department of Public Health is reported to be making an extensive investigation to determine the cause, Dr. Roy F. Feemster, director of the division of communicable diseases, said. The staff of Cambridge City Hospital was commended for efficiency in dealing with the crisis.

Appointments to the Teaching Staff at Harvard.—Recent appointments to the teaching staff at Harvard Medical School, Boston, include:

Dr. Robert E. Gross, Framingham, William E. Ladd professor of child surgery and head of the department of surgery at Children's Hospital.
Dr. William T. Green, Belmont, clinical professor of orthopedic surgery and director of orthopedic surgery at Children's Hospital.
Dr. Joseph S. Barr, Newton, clinical professor of orthopedic surgery and director of orthopedic surgery at Massachusetts General Hospital.
Dr. Charles A. Janeway, Weston, Thomas M. Rotch professor of pediatrics and head of the department of pediatrics at Children's Hospital.
Dr. Donald R. Wilson, Outremont, Quebec, research fellow in medicine.
Dr. Jacques A. Carlotti, Paris, France, research fellow in medicine.
Dr. Wade Volwiler, Athens, Ohio, assistant in medicine.
Dr. Louis A. Sieracki, Norwood, Mass., instructor in pediatrics.
Dr. Bertram Selverstone, Norfolk, Va., assistant in surgery.
Dr. Frederic C. Bartter, Boston, research fellow in medicine.
Dr. Thomas Lanier DeLorme, Randolph, Mass., research fellow in neurology.
Dr. Gardner Cowles Quarton, Cedar Rapids, Iowa, assistant in neurology.
Dr. Gustave Derouaux, Liége, Belgium, research fellow in physical chemistry.
Dr. Constance E. Field, London, research fellow in pediatrics.
Dr. Theodore Dunham Jr., Pasadena, Calif., Henry E. Warren fellow in surgery.
Martin Bernard Williamson, Ph.D., Las Vegas, N. M., instructor in ophthalmic research.
Dr. Sidney B. Luria, Waterbury, Conn., assistant in surgery.
Dr. Ralph Henderson Kellogg, Saratoga Springs, N. Y., teaching fellow in physiology.

MICHIGAN

Grant for Research.—The United States Public Health Service has awarded Wayne University College of Medicine a grant of $10,000 in support of research on "The Pharmacology of Synoptic Function" to be carried on in the department of pharmacology and therapeutics under the direction of Dr. Amedeo S. Marrazzi, professor and head of the department.

Lecture by Charles Best.—Dr. Charles H. Best, Toronto, co-discoverer of insulin, was the speaker at a joint meeting of the Detroit Physiological Society and the Wayne University (Detroit) chapter of Sigma Xi, national honorary scientific society, February 4. Dr. Best discussed the agents which affect the metabolism of fat and their relation to the protection of the liver and the kidneys.

Secretaries and Public Relations Conference.—The Annual County Secretaries and Public Relations Conference of the Michigan State Medical Society was held February 2 in Detroit, with Dr. Gilbert B. Saltonstall, Charlevoix, acting as chairman. Dr. Creighton Barker, New Haven, secretary, Connecticut State Medical Society, opened the session with a discussion of public responsibilities of medical societies. The after dinner speaker was Governor Kim Sigler.

County Society Honors Veteran Members.—Houghton-Baraga-Keweenew County Medical Society honored members of the society who have been practicing medicine forty years or more at a dinner recently. They are Drs. Addison D. Aldrich and Simon Levin, Houghton; James B. Quick, Laurium; William T. S. Gregg, Philip D. Bourland, Job R. W. Kirton, James C. Abrams and Andrew C. Roche, Calumet; George F. Brewington, Mohawk; Percy H. Wilson, Chassell; Melvin D. Roberts and Roy C. Whitmore, Hancock. Dr. Alfred LaBine, Detroit, presided.

Dr. McIntyre Goes to California.—Dr. Charles H. McIntyre, Kalamazoo, has accepted the position of chief of surgical service at the Veterans Administration hospital, Los Angeles, effective March 1. Dr. McIntyre, a graduate of the University of Michigan Medical School in 1931, was an instructor in the surgical department at University Hospital, Ann Arbor, before coming to Kalamazoo in 1936. He served in the navy in the Pacific areas during the recent war, attaining the rank of commander, and resumed his practice in Kalamazoo in January 1946. He is a specialist certified by the American Board of Surgery and was on the visiting staff of Borgess (Kalamazoo), Bronson Methodist (Kalamazoo), Sturgis Memorial (Sturgis) and Pennock (Hastings) hospitals.

MINNESOTA

Anniversary of Health Association.—Among the speakers at the recent celebration of the fortieth anniversary of the Minnesota Public Health Association were Drs. Lewis S. Jordan, Granite Falls, president, and William A. O'Brien, University of Minnesota Medical School, Minneapolis, director of postgraduate medical education and professor of preventive medicine and public health.

Sentenced for Crime of Abortion.—The Minnesota State Board of Medical Examiners reports that on Dec. 28, 1946, Clara O. Anderson, 48, 1142 Emerson Avenue North, Minneapolis, was sentenced to a term of three years at hard labor in the Woman's Reformatory at Shakopee by Hon. Levi M. Hall, judge of the district court of Hennepin County. The defendant had pleaded guilty to an information charging her with the crime of abortion and also with having had a conviction for similar offenses in 1943. On the same date Irene E. Mac Farland, 46, 1514 Sixth Street North, Minneapolis, and Isadore Abramovich, 24, 706 Elwood Avenue North, Minneapolis, entered pleas of guilty to an information charging them with the crime of abortion in the same case with defendant Anderson. Judge Hall sentenced defendant MacFarland to one year in the Minneapolis Woman's Detention Home, suspended the sentence and placed the defendant on probation. Abramovich was sentenced to a one year term in the Minneapolis Work House, the sentence being suspended and the defendant placed on probation. None of the defendants are licensed to practice any form of healing in the state of Minnesota.

NEBRASKA

Tuberculosis Survey in Seventy-Three Locations.—From November 1945 to November 1946 a total of 41,263 4 by 5 free chest x-rays were taken in seventy-three different locations. Of these, 208 cases, or 5 per cent, showed persons to be sources for the spread of tuberculosis, and 470, or 1.1 per cent, were classified as suspected cases. There are 291 persons in hospitals or under the care of a private physician as a result of the survey. Fifty-seven counties have requested that the mobile unit of the state health department visit their communities.

Seminar on Poliomyelitis.—An intensive three day course of instruction for a selected number of physicians of the state was given January 9-11 by the National Foundation for Infantile Paralysis, the University of Nebraska College of Medicine and Creighton University College of Medicine. The course covered all phases of poliomyelitis, including early diagnosis, differential diagnosis, physical therapy, occupational therapy and the various aspects of convalescent care. One physician was selected by each of the councilors of the Nebraska State Medical Association with the expectation that each attending physician would return to his local medical group and report new developments.

NEW YORK

Richard Lyons Joins Syracuse University Staff.—The appointment of Dr. Richard H. Lyons as the Edward C. Reifenstein professor of medicine at Syracuse University College of Medicine, Syracuse, has been announced by Dr. H. G. Weiskotten, dean. Dr. Lyons, who is now associate professor of medicine at the University of Michigan School of Medicine, Ann Arbor, will assume his responsibilities at Syracuse this coming June. He is particularly well known for a series of papers on the development of a drug called "tetraethyl ammonium" helpful in vascular disease of the extremity, associated with poor blood flow.

Ward Helpers.—At a conference in December of leaders of District 1, New York State Nurses Association, of the Western New York Hospital Council and of professional nurse representatives of fourteen hospitals in the area, plans to introduce a ward helper program in western New York hospitals were completed. Harold A. Grimm, superintendent of Millard Fillmore Hospital, Buffalo, presided. Since there is no immediate hope of correcting the shortage of professional nurses in western New York institutions, ward helpers will be assigned to nursing departments in the hospitals to perform largely housekeeping duties, particularly in hospital wards, and to assist with some of the simpler procedures concerned with personal care of patients. They will be paid $90 a month during an apprenticeship and $100 when qualified for permanent employment. Interested women are urged to apply.

New York City

New Foundation for Research on Hypertension.—A gift of $1,000,000 to Beth Israel Hospital for a new foundation for medical research on hypertension has been established by Mr. and Mrs. Joseph Levy and will be known as the "Joseph and Helen Yeamans Levy Foundation, established in memory of their daughter Miriam Levy Finn." Dr. Arthur M. Fishberg, Beth Israel physician in chief and director of medical service, will serve the foundation as director. One objective of the foundation will be to furnish opportunities to young physicians and scientists.

Director of Laboratories Appointed.—Dr. Ward H. Cook, for seventeen years director of Bureau of Laboratories of the city of Yonkers, has been appointed to direct the laboratories at the Long Island College Hospital, Brooklyn, when the expansion program of the hospital, now under way, has been completed. Pre-

viously he taught pathology at Harvard Medical School, Boston, was assistant professor of bacteriology at the University of Pittsburgh and professor of pathology at the Medical College of Virginia, Richmond. He has also been pathologist to the New York Post-Graduate Medical School and Hospital, New York City.

Ten Cancer Detection Centers to Open at Once.—Fourteen new centers for the detection of cancer will be opened in the city. A grant of $187,835 is the first of a series to be provided by the New York City Cancer Committee, it was announced by General John R. Kilpatrick, chairman, board of managers, and Dr. John C. A. Gerster, chairman of the medical committee. The first ten centers will be opened at once, and negotiations are in progress for the remaining four. "These fourteen centers," said General Kilpatrick, "are the result of demands made on present cancer detection facilities. Their purpose is to provide a place for any one apparently well and without symptoms to go to make sure that he is free from the threat of cancer." The service will be provided at a moderate fee and if necessary the patient will be referred to his physician for treatment. Seven of the ten cancer centers are located in voluntary institutions which will receive appropriations totaling $57,995: Lennox Hill Hospital, Hospital for Joint Disease, New York University School of Medicine, Beekman-Downtown Hospital, Beth David and Staten Island hospitals and St. Vincent's Hospital in Staten Island. Three centers will be opened in connection with city hospitals and a welfare center, their appropriation totaling $21,640: Harlem Hospital, Welfare Island Dispensary and Kips Bay-Yorkville Health Center. The committee has also made three special grants for the extension of cancer facilities: Memorial Hospital $20,000 for additional personnel, Postgraduate Hospital $9,400 and Roosevelt Hospital $3,000. General Kilpatrick says the grants were the first of a series for medical service, education and research in the fight against cancer.

OHIO

Upholds Conviction on Abortion Charge.—The Ohio Supreme Court has upheld the conviction of Dr. Lloyd L. Jones, Columbus, in Franklin County Criminal Court on six counts of abortion. He must serve from six to forty-two years in Ohio Penitentiary. The Ohio court refused to review an appeal of his case from the district court of appeals, which had affirmed Dr. Jones's conviction in criminal court.

Industrial Hygiene Service.—New regulations for the prevention and control of industrial diseases went into effect January 1. They specify the maximum permissible amount on an eight hour exposure to sixty-two dusts, fumes, gases, mists and vapors to which workers can be exposed during employment. The regulations are being administered by the division of industrial hygiene, Ohio Department of Health. Since the work is primarily a service to industry and labor, it will function largely on a basis of requests from individual industries, labor organizations, health officers and physicians.

Society of General Physicians.—The general physicians of greater Cincinnati have formed a new organization called the Society of General Physicians, which is a federation of eleven member sections. The organization is dedicated to the advancement of the practice of general medicine and the realization of these purposes: 1. To define the functions of the practice of general medicine. 2. To promote the inclusion of general physicians in programs of postgraduate training. 3. To secure for general physicians in their hospitals the right to practice (in accordance with their ability and training) those arts and technics that lie within the scope of general medicine; the inclusion of general physicians as such, in their active medical staffs, and the right to vote and hold office in their medical staffs. Any physician who is an active member of the Academy of Medicine of Cincinnati, or who would be eligible for membership in the academy except for the fact that he does not reside in Hamilton County, Ohio, is eligible for membership in this society, the officers of which are Dr. Harry R. Mendelsohn, president, and Dr. F. William Vockell, 301 West McMillan Street, Cincinnati, secretary-treasurer.

PENNSYLVANIA

Special Course in Psychiatry.—A special three weeks' course in psychiatry is being conducted at the Warren State Hospital, Warren, by Dr. Milton H. Erickson, professor of psychiatry, Wayne University College of Medicine, Detroit, and Director of Psychiatric Research and Training, Eloise Hospital, Eloise, Mich. The course is being attended by members of other state institutions in Pennsylvania.

TEXAS

El Paso Medical Center.—A new medical center will be completed in El Paso early this year to meet the needs of the community, ten counties in west Texas, bordering counties in Arizona and New Mexico and the adjacent state of Chihuahua, Mexico. The $2,000,000 general hospital and adjacent nurses' residence and training school, to be known as Providence Memorial Hospital, will replace the existing Providence Memorial Hospital and will be held and operated in trust by a group of citizens who will serve as a board of trustees. The location of the medical center in El Paso was recommended by the U. S. Public Health Service and by the Texas Hospital Service. It will raise in the area the ratio of hospital beds from 2.08 per thousand to minimum standards of 4.5.

Dallas Southern Clinical Conference.—The annual spring conference of the Dallas Southern Clinical Society, March 17-20 in Dallas, will be held at the Adolphus and Baker hotels. The program has been planned to give the general practitioner and the specialist practical teaching. Guest speakers include Drs. Elmer Belt, Los Angeles, urology; William K. Boyd, Toronto, pathology; Franklin D. Dickson, Kansas City, orthopedic surgery; F. Bruce Fralick, Ann Arbor, Mich., ophthalmology; Leo H. Garland, San Francisco, radiology; George H. Humphreys, New York, surgery; John R. Lindsay, Chicago, otolaryngology; Perrin H. Long, Baltimore, preventive medicine; Henry G. Poncher, Chicago, pediatrics; Isadore S. Ravdin, Philadelphia, surgery; Ralph A. Reis, Chicago, obstetrics and gynecology; Newton D. Smith, Rochester, Minn., proctology; Williard O. Thompson, Chicago, medicine; John C. Whitehorn, Baltimore, neuropsychiatry, and Julius L. Wilson, New Orleans, medicine.

WASHINGTON

Hospital and University Affiliate.—The board of trustees of King County Hospital and the board of regents of the University of Washington have agreed to an affiliation between the school of medicine of the university and the King County hospital system. The staff of the hospital has been reorganized so that the early clinical teaching program of the medical school may be developed along both the undergraduate and the graduate program.

Spokane County Society Assisted Their Medical Veterans.—A plan was devised in Spokane in January 1942 to assist members of the Spokane County Medical Society who would enter the military service. Doctors who were commissioned as first lieutenants in the army, or the equivalent in other branches of the service, would have their income raised to that of a captain, thus providing them an extra $34, with an additional $10 for each dependent. All contributions to the Medical Officers' Beneficial Fund were voluntary; they continued throughout the war, and 87 per cent of the members contributed from $10 to $25 a month. A total of $66,027.50 was contributed by 134 members of the county society. As this amount exceeded the sum needed for the original purpose, it was decided to give also to each member who entered the service $150 for each period of six months he was away. These payments were made when the veterans were released from the service in order to help them resume civil practice. It was available, however, at any time during the war in case an emergency arose for the individual. Fifty doctors benefited from the fund, the smallest amount received by any one veteran having been $330 and the largest amount $2,334.16. Payments were made whether or not the veterans resumed practice in Spokane. Two wives of men who died in the service received payments from the time of the husband's entry until Sept. 1, 1946. Marjorie Weber, secretary to the Medical Officers' Beneficial Fund, writes that the final payments have just been made and that the books of the fund have been closed.

WEST VIRGINIA

Lifetime Memberships.—The council of the West Virginia State Medical Association has elected the following doctors to honorary lifetime membership: Drs. Oscar O. Eakle and Homer S. Brown, Sutton; Leonard W. Deeds, Buckhannon; G. M. Burton and Samuel H. Burton, Weston; James B. Dodrill, Webster Springs; Homer O. Van Tromp, French Creek; Charles B. Rohr, Alum Bridge, and S. H. Post, Clarksburg.

School Health Education. — A questionnaire entitled "Inventory of Secondary School Health Education Program in West Virginia" has been prepared and mailed to all principals of high schools in West Virginia. The committee submitting the inventory is composed of Miss Katherine Steinbicker, state consultant for the community health service project, department of education, Mrs. Grayce Hoke, Mr. A. J.

Gibson and Mr. L. K. Lovenstein. The replies to the questionnaire will be used in setting up comprehensive objectives and in implementing a health education program to meet the needs and interest of high school students in the state.

Cancer Information Centers.—West Virginia's first cancer information center has been opened at 207 Bradford Street in Charleston. It is being financed from funds collected in the annual cancer drive of the American Cancer Society. The center is open to the public each weekday from 9 until 5. Literature is being distributed, and information is available to persons interested in cancer control. Applications of needy cancer patients for financial aid through the division of cancer control are handled by Mrs. Frances Meyer, who is in charge of the center and who attends the two tumor clinics in Charleston. Plans are being completed for the opening of an information center at 77 Twelfth Street, Wheeling, with Miss Virginia Ewing, a graduate in social service from Wooster University, in charge. A third center will be opened in Clarksburg early in the spring.

GENERAL

Eye Bank Grants Fellowship.—The Eye Bank for Sight Restoration, Inc., has announced that the first international fellowship to be granted by the eye bank is to be awarded to an ophthalmologist of the Hebrew University in Palestine in ophthalmology and research work under the direction and supervision of the Wilmer Institute of Johns Hopkins University, Baltimore.

Infantile Paralysis Research Meeting.—Scientists and physicians engaged in infantile paralysis research recently conferred in Chicago on setting up standard practices and methods for use of curare in relieving muscle spasms at the acute stage of poliomyelitis. Harry M. Weaver, Ph.D., director of research, National Foundation for Infantile Paralysis, which sponsored the meeting, presided.

Norton Award to Dr. Bernheim.—The $3,500 Norton Medical Award for 1947 has been made to Dr. Bertram M. Bernheim, Baltimore, for his book "A Surgeon's Domain." The award is made for the best book by a professional man written for the layman. Dr. Bernheim is associate professor of surgery at the Johns Hopkins Medical School, Baltimore, and visiting surgeon to the Johns Hopkins Hospital.

Warning of Impostor.—Brooks Mendell, New York, is visiting various research and treatment centers in the United States representing himself as an authorized agent of the National Foundation for Infantile Paralysis. Dr. Hart E. Van Riper, medical director of the foundation, advises that Mendell has no connection with the National Foundation for Infantile Paralysis, nor has he been authorized to contact any institution or laboratory where work is in progress under a grant from the foundation.

Pan American Congress of Ophthalmology.—The third Pan American Congress of Ophthalmology will be held in Havana, Cuba, Feb. 23-28, 1948. Papers should be in the hands of the committee by February 23 for official subjects. No program changes can be made after August 23. Papers should be accompanied by an official summary of 300 to 500 words for the official subjects and from 200 to 300 words in the free communications. Those who wish to attend the congress should send their names to Dr. Tomas R. Yanes, P. O. Box 970, Havana, Cuba.

Research Fellowship Awarded.—The first of the American College of Physicians Research fellowships for 1947-1948 has been awarded Dr. Thomas F. Paine Jr., Cambridge, Mass., who will continue studies of infectious diseases with special reference to chemotherapy and the use of antibiotics at the Thorndike Memorial Laboratory, Boston City Hospital. Dr. Paine is a graduate of Vanderbilt University School of Medicine, Nashville, 1942, interned at Strong Memorial Hospital, Rochester, N. Y., and during his service in the Army of the United States participated in clinical and laboratory studies of infectious diseases.

Unprecedented Turnover in Deanships.—The *Diplomate* for December 1946 reports that since the 1945 annual meeting of the Association of American Medical Colleges an unprecedented turnover has occurred in deanships, three resulting from deaths and twenty due to resignation or retirement. Nineteen new deans have been appointed. Three schools are without a dean and are seeking men to fill the vacancies. One dean will retire as soon as a successor is found. When these positions are filled there will have been twenty-three new deans since October 1945. Since there are only seventy-eight medical schools in the United States and ten in Canada, this is a 25 per cent turnover.

Applications for Aid for Research in Sex Problems.—Applications to the National Research Council Committee for Research in Problems of Sex for financial aid during the fiscal year beginning July 1, for work on fundamental problems of sex and reproduction, should be received not later than April 1. They may be addressed to the chairman, Robert M. Yerkes, Ph.D., Yale School of Medicine, New Haven 11, Conn. Although hormonal investigations continue to command the interest and support of the committee, preference, in accordance with current policy, will ordinarily be given to proposals for the investigation of neurologic, psychobiologic and behavioral problems of sex and reproduction.

Aid for Superior Students.—The Walter Joseph Meek Fund has recently been established for students of the University of Wisconsin Medical School, Madison, by Dr. Anton J. Carlson, Frank P. Hixan distinguished service professor emeritus of physiology at the University of Chicago, a former pupil, in recognition of Dr. Meek's superior performance in teaching research and public service. The fund is intended for superior and financially needy students in the medical sciences. Dr. Carlson contributed $400. Dr. Paul Hodges, professor of roentgenology at the University of Chicago, contributed an additional $100. It is expected that this fund will increase with donations from former students and colleagues of Dr. Meek.

Training Conferences on Poliomyelitis.—Area staff training conferences on the subject of poliomyelitis are being sponsored by the American Red Cross. The Midwestern Area conference met January 23-24 in St. Louis, the Pacific Area in San Francisco January 27-28, and the Southeastern Area at Atlanta, Ga., February 10-11. Other conferences planned are for the Eastern Area at Alexandria, Va., February 26-27; North Atlantic Area at New York City, April 2-3. The purpose of each meeting is to prepare staff nurses to judge nursing needs in poliomyelitis outbreaks, to bring them up to date on procedures and available facilities and to discuss problems encountered in nurse recruitment and assignment. Representatives of the National Foundation for Infantile Paralysis and the Children's Bureau will be present at each meeting.

Lost or Stolen Narcotic Order Forms.—The Office of the Commissioner of Narcotics, Washington 25, D. C., has again announced the numbers of those order forms for opium and other narcotics which have been reported and are probably in the hands of persons not entitled to them. These numbers are in addition to the order forms reported lost in narcotic circular 283, July 9, 1946. Wholesale dealers in narcotics, importers and manufacturers are warned not to fill any order form on which any of the numbers reported appear or any form listed in circular 283 (except numbers A312167-170, R132381-390 and R568761-770, all inclusive, which have been found). Any order form presented on which the serial number is listed in these two circulars should be forwarded to the Office of the Commissioner of Narcotics at once.

Deaths in Other Countries

Sir Edward Thornton, formerly secretary for public health and chief health officer for the Union of South Africa and D. G. M. S. of the Union Defense Forces with rank of brigadier, died Oct. 26, 1946, aged 68.——**Dr. Gonzálo Castañeda,** dean of the National Academy of Medicine, Mexico City, died recently, aged 78.——**Dr. Charles Fenwick Wilde,** former physician at Montreal General Hospital, Montreal, Que., and administrator in medicine at McGill University, died Nov. 24, 1946, aged 80.——**Sir William J. Collins,** former vice chancellor of London University, consulting surgeon at Royal Eye Hospital, died Dec. 12, 1946 in London.

Marriages

William Somers Reynolds Jr., Wetumpka, Ala., to Miss Jean Vaughan Ferebee of Norfolk, Va., in October.

Stanley Willard Wright, Berkeley, Calif., to Dr. Phyllis Richman Mann of New York November 16.

Victor Hill Klein Jr., Knoxville, Tenn., to Miss Frances Lathan Perkins at Memphis recently.

DeArmond Moore, Charlotte, N. C., to Miss Leona Rose Olander of Pittsburgh October 8.

Otto A. Miller, Ashland, Pa., to Miss Pearl Zimmerman of Buck Run in September.

Wesley M. Page, Bedford, Iowa, to Miss Betty Jane Thomas of Iowa City September 27.

Deaths

John Favill ✠ Chicago; born in Madison, Wis., on Sept. 9, 1886; Harvard Medical School, Boston, 1913; professor of neurology at the University of Illinois College of Medicine; interned at the Massachusetts General Hospital in Boston; specialist certified by the American Board of Psychiatry and Neurology; for many years on the faculty of Rush Medical College; fellow of the American College of Physicians, American Psychiatric Association, American Association for the Advancement of Science and the Institute of Medicine of Chicago; member of the Society of Medical History of Chicago, Chicago Society of Internal Medicine, Chicago Academy of Criminology, American Neurological Association, serving at one time as its vice president, Illinois Psychiatric Society, Association for Research in Nervous and Mental Diseases, Association for the Study of Internal Secretions, Illinois Society for Mental Hygiene, National Committee on Maternal Health, Illinois Birth Control League, National Medical Committee on Federal and State Contraceptive Legislation, National Medical Council on Birth Control, National Committee on Planned Parenthood, Birth Control Federation of America and many others; member and past president of the Chicago Society for Personality Study, Chicago Neurological Society and Central Neuropsychiatric Association; served with the American Expeditionary Forces in France during World War I; colonel, medical reserve corps, not on active duty; served in various capacities on the staffs of the Central Free Dispensary, Illinois Institute for Juvenile Research, Institute for Psychoanalysis, St. Luke's, Cook County, St. Elizabeth, Highland Park (Ill.), and the Presbyterian hospitals; author of "Outline of the Cranial Nerves," "Primer of Celestial Navigation" and others; trustee of the Rogers Memorial Sanitarium in Oconomowoc, Wis., and Elizabeth McCormick Memorial Fund; died at his home in Winnetka, Ill., Dec. 21, 1946, aged 60, of coronary thrombosis.

George Andrew Chapman ✠ Glen Falls, N. Y.; Baltimore Medical College, 1897; past president of the Medical Society of the State of New York and the Warren County Medical Society; veteran of the Spanish-American War; member of the American Public Health Association, American Association for the Advancement of Science, American Congress of Internal Medicine, New York State Society of Internal Medicine and the Sanitary Officer Association of State of New York; fellow of the American College of Physicians; for many years health officer of Queensbury; affiliated with the Glen Falls Hospital; died Dec. 16, 1946, aged 75, of uremia.

Ernest Dwight Chipman ✠ San Francisco; Yale University School of Medicine, New Haven, 1897; an Affiliate Fellow of the American Medical Association; specialist certified by the American Board of Dermatology; member and formerly vice president of the American Dermatological Association; member of the House of Delegates of the American Medical Association in 1915 and 1916 and chairman, Section on Dermatology and Syphilology, 1921-1922; served on the staffs of the Mary's Help Hospital, French Hospital and the Franklin Hospital; died Dec. 4, 1946, aged 71, of Parkinson's disease.

Robert Louis Lee, Kansas City, Kan.; University of Kansas School of Medicine, Kansas City, 1929; member of the American Medical Association; interned at the New Charleston General Hospital and Training School in Charleston, W. Va.; began active duty as a captain in the medical reserve corps of the U. S. Army in March 1941; promoted to major; served overseas; released from active duty on June 20, 1945; secretary of the Bethany Hospital staff; surgeon for the Atchison, Topeka and Santa Fe Railroad; died Nov. 28, 1946, aged 43, of coronary occlusion.

A. Bennett Cooke, Los Angeles; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; clinical professor of surgery at the College of Medical Evangelists; formerly on the faculty of his alma mater; member of the American Medical Association, serving as a member of its House of Delegates in 1911, 1912 and 1913 and Judicial Council from 1911 to 1918; fellow of the American College of Surgeons; on the staffs of the Los Angeles County Hospital, Presbyterian Hospital-Olmsted Memorial, California and Methodist hospitals; died Dec. 9, 1946, aged 79.

Leon James Barber ✠ Patchogue, N. Y.; University of Vermont College of Medicine, Burlington, 1913; served during World War I; on the staff of the John T. Mather Memorial Hospital in Port Jefferson; died Dec. 23, 1946, aged 58.

George Evans Beatty, Brooklyn; Long Island College Hospital, Brooklyn, 1912; served on the staffs of the Norwegian, Caledonian and Prospect Heights hospitals; died Dec. 16, 1946, aged 58, of heart disease.

Eli Thomas Brand, Wilmette, Ill.; Washington University School of Medicine, St. Louis, 1908; died Dec. 23, 1946, aged 63, of chronic myocarditis.

Frank T. Brigham, Watkins, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; member of the American Medical Association; died in Rochester recently, aged 66, of bronchopneumonia and carcinoma of the prostate.

Hugh Ria Brownlee, Cleveland; University of Buffalo School of Medicine, 1900; on the staff of the Huron Road Hospital in East Cleveland, where he died Dec. 5, 1946, aged 76, of coronary thrombosis.

Sherman Moran Burns ✠ Oswego, N. Y.; Syracuse University College of Medicine, 1920; fellow of the American College of Surgeons; specialist certified by the American Board of Surgery; president of the Fifth District Branch of the Medical Society of the State of New York; on the staff of the City Hospital; died Dec. 15, 1946, aged 54, of coronary thrombosis.

Foster Kendrick Camp, Pasadena, Calif.; Dearborn Medical College, Chicago, 1906; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; died Dec. 4, 1946, aged 72, of intestinal obstruction.

Ernest Marion Carson, Rembert, S. C.; Medical College of the State of South Carolina, Charleston, 1905; died Dec. 2, 1946, aged 67.

Archie Leonard Clayton, Fort Payne, Ala.; Chattanooga (Tenn.) Medical College, 1905; found dead Dec. 8, 1946, aged 74.

Henry L. Cody, St. Louis; St. Louis College of Physicians and Surgeons, 1898; also a graduate in pharmacy; died January 14, aged 73, of angina pectoris.

Waller Glenmore Combs, Kirksville, Ky.; University of Louisville Medical Department, 1906; served during World War I; died Dec. 8, 1946, aged 63, of heart disease.

Robert Houk Cox, Murphy, N. C.; University of Tennessee College of Medicine, Memphis, 1940; interned at St. Joseph's Hospital in Memphis; member of the American Medical Association; member of the staff of the Petrie Hospital; died Dec. 7, 1946, aged 33, of skull fracture received when he fell from a ladder while trying to escape from a fire in the Winecoff Hotel in Atlanta, Ga.

Homer Winfield Crane ✠ Berkeley, Calif.; Cooper Medical College, San Francisco, 1909; major, medical reserve corps, not on active duty; member of the staff of the Alta Bates Hospital; died Dec. 19, 1946, aged 65.

George L. Cremeens, Springerton, Ill.; Keokuk (Iowa) Medical College, 1895; member of the American Medical Association; served as village president; died Dec. 22, 1946, aged 78.

Joseph M. Croman Sr. ✠ Mount Clemens, Mich.; Detroit College of Medicine, 1892; served as police commissioner and as county physician; on the staff of St. Joseph Sanitarium and Hospital, where he died Dec. 10, 1946, aged 81, of coronary thrombosis.

Deborah Vivian Rubenstein Dauber ✠ Chicago; Boston University School of Medicine, 1938; diplomate of the National Board of Medical Examiners; interned at the Mount Sinai Hospital in Cleveland; interned and served a residency at the Michael Reese Hospital, where she was a member of the cardiovascular research division and where she died Nov. 21, 1946, aged 32, of injuries received when struck by an automobile.

Domnick Patrick Dempsey ✠ Kellogg, Minn.; John A. Creighton Medical College, Omaha, 1906; member of the American Medical Association; died in St. Mary's Hospital, Rochester, Nov. 30, 1946, aged 76, of fracture of the left hip received in a fall and arteriosclerosis.

Thomas Claude Donald ✠ Birmingham, Ala.; Medical College of Alabama, Mobile, 1897; president of the board of education of the city schools of Bessemer, Ala., from 1920 to 1925; member of the Southern Medical Association; on the staff of Baptist Hospital; died Dec. 5, 1946, aged 70, of cardiovascular disease.

Henry Beaman Douglass, East Boothbay, Maine; College of Physicians and Surgeons, medical department of Columbia College, New York, 1886; member of the American Medical Association, Medical Society of the State of New York and the American Laryngological, Rhinological and Otological

Society; at one time professor of diseases of the nose and throat at the New York Post-Graduate Medical School and Hospital, Columbia University, New York; died in West Palm Beach, Fla., Dec. 5, 1946, aged 80, of coronary thrombosis.

Kirby Dwight ✦ New York; Columbia University College of Physicians and Surgeons, New York, 1905; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; served as president of the Medical Society of the County of New York, as trustee and member of many committees of the New York Academy of Medicine and as treasurer of the Medical Society of the State of New York; on the staffs of the Lincoln and Roosevelt hospitals; died Dec. 3, 1946, aged 67.

John Joseph Ederer, Minneapolis; University of Minnesota Medical School, Minneapolis, 1930; member of the American Medical Association; interned at the U. S. Marine Hospital, Stapleton, Staten Island, N. Y.; formerly medical superintendent and owner of the Mahnomen (Minn.) Hospital; for three years examining physician for the Selective Service in Mahnomen County; died Dec. 11, 1946, aged 41, of coronary thrombosis and pneumonia.

George Boardman Edwards, Darlington, S. C.; Medical College of the State of South Carolina, Charleston, 1901; member of the American Medical Association; honorary member of the South Carolina Medical Association; served as mayor and as county coroner; died in the McLeod Infirmary, Florence, Dec. 13, 1946, aged 72, of carcinoma.

Elmer Sylvester Erhard ✦ Curwensville, Pa.; Medical Department Western University of Pennsylvania, Pittsburgh, 1906; president of the school board; served as county coroner and a term as burgess; for many years medical examiner for the local draft board; on the visiting staff of the Clearfield (Pa.) Hospital; died Dec. 2, 1946, aged 69, of coronary thrombosis.

Emerson Armor Fletcher, Milwaukee; University of Pennsylvania Department of Medicine, Philadelphia, 1892; member of the American Urological Association; fellow of the American College of Surgeons; served on the staffs of the Milwaukee, St. Mary's and Milwaukee Children's hospitals; died Dec. 6, 1946, aged 77, of arteriosclerosis.

Julius Henry Philip Gauss ✦ Indianapolis; Rush Medical College, Chicago, 1903; assistant professor of medicine at the Indiana University School of Medicine; interned at the Michael Reese Hospital in Chicago, where he was on the staff of the Alexian Brothers' Hospital from 1908 to 1912; at one time fellow in medicine at the Mayo Foundation, Rochester, Minn.; formerly on the faculty of his alma mater; on the staffs of the Methodist and St. Vincent's hospitals; died Oct. 31, 1946, aged 74, of cerebral thrombosis.

Matthew Gerard Golden, Brooklyn; Fordham University School of Medicine, New York, 1919; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Oto-Laryngology; served as assistant clinical professor of otolaryngology at the Long Island College of Medicine; on the staffs of the Kings County Hospital, St. Peter's Hospital, Victory Memorial Hospital and the Midwood Hospital; died Nov. 11, 1946, aged 52.

Philip Hartson Greeley ✦ Concord, N. H.; Dartmouth Medical School, Hanover, N. H., 1897; member of the Maine Medical Association; died Dec. 2, 1946, aged 76, of arteriosclerosis.

Edgar James Haines, Medford, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; member of the American Medical Association; served on the staff of the Burlington County Hospital in Mount Holly; died Nov. 5, 1946, aged 67, of cardiovascular disease.

John Allan Ilderton, Yemassee, S. C.; Medical College of the State of South Carolina, Charleston, 1911; died Nov. 4, 1946, aged 60.

William Eli McCormack ✦ Major, U. S. Army, retired, Sarasota, Fla.; University of Louisville Medical Department, 1911; Army Medical School and Medical Field Service School in 1921; at one time professor of microscopic anatomy at the University of Louisville Medical Department; entered the medical corps of the U. S. Army in 1918; served during World War I; retired on Dec. 31, 1932 for disability in line of duty; died in the Moore County Hospital, Pinehurst, N. C., Sept. 5, 1946, aged 59, of coronary occlusion.

George Coe Merriman, Lake Como, Pa.; Albany (N. Y.) Medical College, 1897; member of the American Medical Association; veteran of the Spanish-American War; died Nov. 16, 1946, aged 71.

Heber Guy Morgan, Red Lodge, Mont.; College of Physicians and Surgeons, Baltimore, 1906; member of the American Medical Association; died Nov. 26, 1946, aged 63, of carcinoma of the liver.

John Matthew Mras, Trenton, N. J.; Medico-Chirurgical College of Philadelphia, 1916; at one time superintendent of the Chester County Hospital for the Insane in Embreeville; died in St. Francis Hospital Nov. 12, 1946, aged 54, of ruptured esophageal varix and diabetes mellitus.

George James Musgrave ✦ Chicago; State University of Iowa College of Homeopathic Medicine, Iowa City, 1901; assistant clinical professor of otorhinolaryngology at the Loyola University School of Medicine; fellow of the American College of Surgeons; on the staffs of the Provident and Mercy hospitals; died in Henrotin Hospital Nov. 28, 1946, aged 70.

John Rudolph Nenninger, Westfir, Ore.; University of Cincinnati College of Medicine, 1940; member of the American Medical Association and Ohio State Medical Association; interned at the Christ Hospital in Cincinnati; served in the medical corps, U. S. Naval Reserve, during World War II and was released in March 1946 from active duty with rank of lieutenant commander; died in Eugene Nov. 3, 1946, aged 39, of acute leukemia.

John Howard Norris, Fostoria, Ohio; University of Wooster Medical Department, Cleveland, 1877; Bellevue Hospital Medical College, New York, 1880; served on the staff of the City Hospital, where he died Nov. 25, 1946, aged 90, of acute suppurative appendicitis and peritonitis.

Harry Theron Pitman, Chulumani, Bolivia, South America; College of Medical Evangelists, Loma Linda-Los Angeles, 1940; served an internship and residency at the General Hospital of Fresno County in Fresno, Calif.; commissioned a first lieutenant in the medical reserve corps of the U. S. Army and was later honorably discharged; in charge of the Chulumani Sanitarium and Hospital; killed in an airplane accident Nov. 8, 1946, aged 34.

Walter Robert Rieck ✦ Kearny, N. J.; Long Island College Hospital, Brooklyn, 1906; died in West Hudson Hospital, Kearny, Nov. 4, 1946, aged 64, of cirrhosis of the liver and gastric hemorrhage.

John Henry Rinehart, Moran, Kan.; Eclectic Medical University, Kansas City, 1903; served during World War I; died Nov. 2, 1946, aged 73, of cerebral hemorrhage.

Eugene C. Roseberry, Springfield, Mo.; Rush Medical College, Chicago, 1895; member of the American Medical Association; member of the medical board of the Missouri State Sanatorium, Mount Vernon; on the associate staff of the Burge and St. John's hospitals; on the staff of the Springfield Baptist Hospital, where he died Nov. 29, 1946, aged 78, of coronary thrombosis.

Chester I. Sater, Albion, Idaho; Barnes Medical College, St. Louis, 1909; member of the American Medical Association; died in the Rupert (Idaho) General Hospital Nov. 15, 1946, aged 62, of heart disease.

Harold Clinkscales Shirley, Charlotte, N. C.; Johns Hopkins University School of Medicine, Baltimore, 1918; member of the American Medical Association; on the staff of the Memorial Hospital; died Nov. 28, 1946, aged 55, of cerebral hemorrhage.

Carl Miller Sneed ✦ Columbia, Mo.; University of Missouri School of Medicine, Columbia, 1901; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; on the staff of the Boone County General Hospital; died Nov. 6, 1946, aged 69, of coronary thrombosis.

Joseph John Sweeney, Philadelphia; Temple University School of Medicine, Philadelphia, 1927; school doctor in Yeadon, Pa.; interned at St. Mary's Hospital; served a residency at the Doctors Hospital, where he later became a member of the staff and where he died Nov. 27, 1946, aged 47, of uremia.

Dale Edward Thomas ✦ Saginaw, Mich.; University of Michigan Medical School, Ann Arbor, 1928; past president of the Saginaw County Medical Society; on the visiting staffs of St. Mary's and St. Luke's hospitals; on the staff of the Saginaw General Hospital; died Nov. 5, 1946, aged 42, of cerebral hemorrhage.

Charles Edward Westerhout, Brea, Calif.; College of Medical Evangelists, Loma Linda-Los Angeles, 1929; interned at the Portland Sanitarium and Hospital in Portland, Ore.; served during World War II; on the staff of the Fullerton (Calif.) Hospital; died in the Veterans Hospital, Oakland, Nov. 20, 1946, aged 44, of myelogenous leukemia.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 22, 1947.

Socialistic Medical Bodies and the Health Service

A meeting of the representative body of the British Medical Association will be held on January 28 to decide whether the association will negotiate with the minister of health or not as to the terms under which the profession will work the national health service. As reported in a previous letter, the council of the association has advised the representatives to decline to negotiate and it seems probable that they will do so. This has led to a move by a body which is antagonistic to the British Medical Association, the Medical Practitioners Union. It has a membership of 4,000 against the 58,000 of the British Medical Association and is a registered trade union. It claims to be nonpolitical, but the dermatologist Sir Ernest Graham-Little, who is the most prominent figure among medical members of Parliament, refers to it as a socialistic body. He evidently regards trade unionism as socialistic. In theory there is a clear difference between socialism and trade unionism. A trade union is simply a combination of the workmen in a particular trade to promote their interests by collective negotiation, restrictive practices and strikes, often to detriment of the community. Socialists, on the other hand, want the state to take over and carry on industries now in the hands of private enterprise. But in present British politics the distinction has disappeared, for the government, which has begun to socialize the great British industries, derives most of its support from the trade unions. The Medical Practitioners Union has sent a circular to doctors stating that the representative body of the British Medical Association at its coming meeting on January 28 will probably decide not to negotiate with the minister of health. Doctors who intend to enter the new service are told that in their own interests they should be represented at the negotiations. It is claimed that the union has studied for many years the question of a state service, and is therefore in a favorable position for such negotiation.

There is another body, the Socialist Medical Association, with a membership of 3,000. There is no question as to the applicability of the term "socialist" here, but there is as to the term "medical," as the majority of the members are not drawn from the medical profession. Those who are amount to less than 1 per cent of the profession. It is obvious that in the coming struggle with the government over the new act these bodies, whether truly socialistic or of socialistic affinity, are likely to cause trouble. The British Medical Association has tried as far as possible to keep politics out of the struggle, but it is of little use to appeal to doctors of socialistic convictions to do this.

Treatment of Traumatic Paraplegia

At the Section of Neurology of the Royal Society of Medicine, Dr. L. Guttmann described the prognosis and treatment of traumatic paraplegia on the basis of 177 cases treated at a center for spinal injuries. The patients were received at different intervals after injury, some with sepsis and contractures. On admission they were often undernourished. Food was considered important in treatment, a high protein intake being essential to replace that lost through pressure sores or urinary infection. The most important measure in the prevention of sores was continual change of posture by day and by night. Infection was controlled by chemotherapeutic agents, and necrotic portions were excised. Dressings should be changed once or twice a day.

In the management of the bladder, neither urethral catheterization nor suprapubic cystotomy had proved wholly satisfactory. Every patient admitted with a cystotomy always had infected urine, often with severe ascending infection. There are indications for cystotomy, such as urethral stricture, but there is no case for its adoption as a routine. When adopted it should be discontinued as soon as possible and replaced by washouts through a catheter or indwelling catheter to reduce infection. Distention of a painless bladder below the level of the lesion sets up a widespread reflex, with flushing of the head and neck, nasal occlusion, raised blood pressure, slow pulse and respiratory discomfort. This reflex proved a valuable guide to distention and reduced the call for acetylsalicylic acid to relieve headache.

Mental changes may be due to infection. An early sign is querulous or rude behavior. Reactive mental disturbance also occurs from psychologic shock. It is essential to secure the patient's cooperation and to surround him with an optimistic atmosphere. The aim should be to reduce the period of recumbency and restore independence as soon as possible. Contractures and atrophy must be guarded against by keeping paralyzed limbs in proper position. The worst contractures are seen in patients who have been in plaster beds. Passive movements are begun at once. Intramedullary injection of 1 cc. of 90 per cent alcohol controls flexor spasm for three or four weeks.

A New Journal Devoted to Nutrition

The Central Council for Health Education announces the publication of a new bimonthly, the *Nutrition Bulletin*, in January. Its object is to deal not with the basic principles of nutrition but with their application to social betterment. Thus it will deal with the growth of the various nutrition services, public instruction, food habits, and the place of diet in the national health. The purpose is to inform all concerned in improving the nation's diet. The address is Tavistock House, Tavistock Square, London, W. C. 1. The annual subscription is 3 shillings.

ITALY

(From Our Regular Correspondent)

Oct. 31, 1946.

Surgical Association of Piedmont

Two preliminary sessions of the National Convention of Medicine and Surgery have been held recently by the Surgical Association of Piedmont in cooperation with the Academy of Medicine of Turin. These meetings were devoted exclusively to results of treatment of tumors of the colon. Among the speakers were Professors S. Battistini, E. Zilocchi, Mottura, Bertocchi and Colombo.

Professor Zilocchi reviewed the histories of 115 patients with tumors of the colon who recovered at the surgical clinic of the University of Turin. He confined his remarks to the surgical treatment of 62 patients who recovered during the period 1936 to 1945. Only 28 of these had radical operations performed. The death rate in this group was 41.9 per cent and the death rate in those treated by palliative means when occlusion was present and the radical operation was not carried out was 44 per cent. Professor Mottura reported the results of 88 necropsies which had been performed at the anatomicopathologic institute of the University of Turin. Natural death had occurred in 48 of the patients and peritonitis was observed in about 50 per cent. Incidence of bronchopneumonia was high. Professor Bertocchi discussed the circulation of the colon and stated that this was poor in three regions: the terminal segment of the ileum, the transverse colon and the sigmoid. This suggests that in right hemicolectomy dissection of the small intestine may be performed 20 to 30 cm. distant from the ileocecal valve after ligation of the ileocolic artery.

PALESTINE

(From Our Regular Correspondent)

JERUSALEM, Jan. 1, 1947.

Method of Prolonging the Action of Local Anesthetics

The prolongation of the action of drugs on the organism has been attempted repeatedly, lately in the case of the antibiotics. Rappoport (*Acta med. orient.* **5,** April 1946) has published a new method which he demonstrates with benzocaine. The drug is dissolved in a nonwatery medium (urethane-methylacetamide); when this solution comes in contact with water, benzocaine is rapidly precipitated.

On injection of this benzocaine solution into body tissues the contact with the body fluids provokes a precipitation of the benzocaine. The solvent is quickly absorbed, and benzocaine remains at the site of the injection in the form of a nonwater soluble, finely distributed substance. The anesthetic action continues until the benzocaine is completely absorbed. A depot of benzocaine is thus formed. In animal experiments with rabbits an anesthesia of two to four weeks' duration could be observed. No tissue damage was seen microscopically at the site of the injection.

In the same number Spira reports clinical experiments with this new principle in 47 cases in which 290 injections had been made. The injections were given endoneurally, perineurally, intra-articularly and by infiltration. The amount of the 2 per cent solution used was between 0.2 and 5 cc. The effect of the anesthetic lasted up to fourteen months. Cases of pruritus ani, epicondylitis, muscular spasm, causalgia, ischialgia, neuroma and humeroscapular contraction were treated. As the injections are very painful, the site of the injection was previously anesthetized by infiltration or nerve block with a 1 per cent watery procaine solution.

Spira points out that, if possible, the injection should not be given into inflamed tissue. The infiltration or the nerve block with procaine is executed with the usual technic; the needle is not removed, but 0.2 to 5 cc. of the benzocaine solution is injected at the same site as soon as anesthesia has set in. Subcutaneous injection is to be avoided.

Virus Myocarditis

Lyon discusses the problem of acute myocarditis as a sequel to infectious mononucleosis in the *Acta med. orient.* **5**:228, 1946. His observations represent an interesting contribution to the problem of virus myocarditis; he presents a case of infectious mononucleosis in which, in the course of four months, considerable changes were found in the electrocardiogram. These changes, which disappeared again completely, consisted mainly of a characteristic negative T deflection in CF_5. The clinical diagnosis was ascertained by a positive Paul-Bunnell test, a specific blood count and typical glandular involvement. Virus myocarditis is of special interest because in Palestine a very slow convalescence is characteristic in the numerous cases of infectious hepatitis and infectious mononucleosis.

Histochemical Method for Staining Kerasin

At a monthly scientific meeting held in the Institute of Pathological Anatomy and Histology of the Hadassah Hospital and Hebrew University, Jerusalem, Professor S. Franco and Dr. M. Wolman demonstrated a new histochemical method for staining kerasin in tissues of patients suffering from Gaucher's disease. The method consists in immersion of frozen sections for thirty minutes in boiling distilled water, buffered at p_H 4, followed by the usual treatment with sudan III. The method can be made specific for cerebrosides by extracting the sections with ether and acetone before staining. The authors believe that the immersion of the sections in boiling water separates the kerasin from a lipoproteic complex.

Hepatic Complications of Amebiasis

In the *Journal of the Palestinian Arab Medical Association* of September 1946 Canaan reports the occurrence of liver complications in amebiasis. He finds that 27.5 per cent of the Palestinian Arabs are infected with Endameba histolytica. Amebic dysentery represents one third of all cases of dysentery in Palestine.

Hepatic complications in Arabs are found statistically to occur in 0.27 per cent of hospital cases. The total number of patients under review was 41,550: at the French Hospital, Bethlehem, from 1935 to 1944, 10,500; at the German Hospital, Jerusalem, in five years, 9,690, and at the French Hospital, Jerusalem, from May 1934 to April 1946, 21,360.

SPAIN

(From Our Regular Correspondent)

MADRID, Dec. 17, 1946.

Alloxan Diabetes

In the medical life of Spain recently one of the studies which will no doubt have wide repercussions was done by Dr. Grande Covian, late assistant professor of physiology in the Medical School of Madrid University, who is now working in the Institute for Medical Research under the direction of Professor C. Jimenez Diaz and concentrating on the problem of alloxan diabetes.

His experiments on dogs began in the spring of 1944. In the first comparative experiment with diabetes caused by removal of the pancreas and diabetes produced by high doses of alloxan, he observed that the latter form was more serious, which led him to visualize the existence of extrapancreatic factors in its production. He then produced cases of slight diabetes, which were spontaneously curable by small doses of alloxan, it being observed that a second injection of alloxan in diabetogenous doses was absolutely inefficacious in these animals. This observation led the investigators to describe such cases as "resistant to alloxan" (or "alloxan resisting"). So far, these cases seem to have been ignored by other investigators.

On studying the causative mechanism of this state of resistance, Dr. Grande observed a rapid destruction of the alloxan in contact with the blood and tissues, this concurring with the result obtained when an attempt was made to determine chemically the degree of alloxan in the blood; with this observation is has become possible to calculate the amount of time needed for the destruction of alloxan, avoiding contact between it and certain viscera.

Furthermore, he saw that if the alloxan did not circulate through the pancreas owing to a ligature in the vessels of that organ, the animal to which diabetogenous doses were injected died with all the symptoms of uremia. To avoid uremia they made the alloxan injection in animals with their renal pedicles temporarily tied; not only did these animals not develop uremia, but they were not diabetic either. If a further dose of alloxan was injected later, they then contracted diabetes. The circulation of alloxan through the kidney therefore seems to be necessary for the development of diabetes and the establishment of resistance to alloxan.

The direct injection of alloxan into the pancreas does not produce diabetes, although disturbances are observed in the β cells of the islets. Therefore, alloxanic diabetes does not appear to be a purely pancreatic form of the disease.

The successive communications on this great work of Dr. Grande Covian's and his associates, Dr. Oya especially, have appeared in the *Revista Clinica Española;* it is to be expected that the investigators will go on producing interesting results.

Correspondence

APPARENT SENSITIVITY TO AMIGEN

To the Editor:—The clinical note entitled "Apparent Sensitivity to Amigen," by Drs. Harris, Gordon, Gray and Barton (THE JOURNAL, Nov. 30, 1946, p. 785) described the attempted suicide of a girl aged 17, who took 125 grains (8.1 Gm.) of phenobarbital. She rapidly went into coma and by the fourth day a fatal outcome seemed likely. On the evening of the fourth day of coma the administration of Amigen 5 per cent in 5 per cent dextrose was begun by the slow intravenous drip method. When 100 cc. of the solution had been administered, a chill occurred. The intravenous drip medication was discontinued. The temperature rose rapidly to 105.8 F. and the pulse rate rose to 164 or higher. The application of cold wet packs and the use of ice water enemas were followed by a gradual decline of the temperature to 103 F., at which point these measures were discontinued. Shock ensued, with an irregular thready pulse and a steady fall of the blood pressure to 70 systolic and zero diastolic. At that point the pulse could not be felt. Epinephrine hydrochloride given intramuscularly resulted in a temporary response. Respirations were extremely shallow and gasping. Nikethamide administered intravenously concomitantly with 10 per cent dextrose brought about improvement in pulse rate and blood pressure. From that time improvement was steady. Partial return to consciousness followed in about forty-eight hours, and speech returned slowly with long intervals of a semicomatose state.

The authors are to be congratulated on a splendid therapeutic result; however, the emphasis laid on the fact that Amigen was the direct cause of the collapse and the assumption that Amigen may give rise to serious foreign protein reactions do not seem to me to be consonant with the evidence presented. The shock symptoms in this patient might reasonably be attributed to the toxic effects of the inordinately large dose of phenobarbital taken, and this deduction is supported by the description of the toxic symptoms of barbiturate poisoning given by Goodman and Gilman (The Pharmacological Basis of Therapeutics, New York, Macmillan Company, 1941, pp. 140-142). It would offer an explanation for (1) coma, (2) prolonged respiratory depression, (3) anoxia, (4) vasodilatation, (5) fall in blood pressure and (6) hypostatic pneumonia resulting from the shallow respiration and low blood pressure. It is known that a person who survives severe barbiturate poisoning for twenty-four to thirty-six hours manifests the shock symptoms on the fourth day or later. In this instance the shock symptoms were most pronounced on the fourth day, and return to normal did not occur for several succeeding days.

It would therefore seem to me more proper to attribute the shock symptoms to the barbiturate poisoning, which antedated the giving of Amigen, for the Amigen was administered at the height of the shock symptoms and when the patient was still in coma. Although the Amigen was promptly discontinued when the chill and sudden rise of temperature occurred in the course of its administration, the patient still remained in coma for several days.

Further, we cannot ignore the fact that the chill and hyperpyrexia may have resulted from a "pyrogen" in the tubing of the intravenous apparatus used for the Amigen. Such pyrogenic reactions are known to occur in intravenous therapy. It has been amply demonstrated that when the tubing is properly prepared such reactions do not occur in the administration of Amigen.

If the reaction is laid to Amigen on the basis of allergy, I fail to see how a rise in temperature can be reconciled with this thesis. Were this an anaphylactic shock reaction, a fall in blood pressure would most likely fit in with a "canine type" of anaphylaxis, in which instance the temperature invariably falls. Furthermore, there were no allergic manifestations of a respiratory or dermal character, and the response to epinephrine was indifferent, all of which would militate against allergy as a basis for the reaction.

Hence I do not feel that adequate evidence is presented to support the deduction of the authors that Amigen was responsible for a nearly fatal anaphylactic type of reaction. It appears more likely that a "pyrogen" due to faulty preparation of the tubing was responsible for the rise in temperature. The shock symptoms, I believe, were due to the barbiturate poisoning. The sudden rise in temperature perhaps served as a jolt to the waning cardiovascular and respiratory systems and was beneficent rather than harmful. The stimulating effects of nikethamide and the diuretic benefits of 10 per cent dextrose added further to the patient's recovery.

All shock symptoms noted clinically should not be attributed too readily to an allergic reaction. The use of such a term as "apparent sensitivity" to describe a shock reaction is misleading. "Cardiovascular collapse" or "alarm reaction" might better have been used to describe the shock reaction in this case. The rise in temperature must remain as an isolated symptom unrelated to the collapse the patient suffered.

BRET RATNER, M.D., New York.

DIET LOW IN SALT

To the Editor:—The discussion of Drs. Wheeler, Bridges and White's paper "Diet Low in Salt (Sodium) in Congestive Heart Failure" in THE JOURNAL January 4 was of special interest to me. Dr. Frederick Allen refers to his early work in 1920 concerning the salt free diet and claims priority for many clinical results and conclusions. I should like to refer to the work of the late Hermann Strauss, medical director of the Jewish Hospital in Berlin, Germany, whose early investigations about the role of salt in edema date back to the beginning of this century. In his book "The Nephritis" (1907), Strauss discussed at length the role of a saltless diet in edema and followed it up in his book "Practical Hints in the Saltless diet," published in 1910. Ever since that time Strauss had stressed in his publications the importance of a saltless diet in the treatment of edematous cardiac conditions.

I want to mention Strauss's name in this connection because his work seems to be forgotten in this country owing to the fact that since 1933 there had been no mutual contact in the medicine of this country and Germany. I happen to know these details, having worked with Strauss for seven years till 1941. A scientific appreciation of his work by me will be published this year in the Robinson Anniversary Volume (under the editorship of Dr. S. R. Kagan of Boston).

Hermann Strauss died in 1942 in a German concentration camp as a victim of Nazism.

CONRAD L. GOSSELS, M.D., Mount Jackson, Va.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Evidence: Blood Grouping Tests Held Not to Be Conclusive Evidence of Paternity.—The plaintiff, by her guardian ad litem, commenced a bastardy proceeding against the defendant for the purpose of obtaining allowances for medical care, support and attorneys' fees. From adverse portions of the judgment, the defendant appealed to the district court of appeal, second district, division two, California.

Prior to the plaintiff's birth, her mother and the defendant entered into a stipulation providing, among other things, that within four months after the birth of the child the plaintiff, the mother and the defendant would all submit themselves to a blood grouping test by certain physicians chosen in accordance with the provisions of the stipulation. The purpose was to determine the paternity of the child, and the stipulation was signed by the plaintiff's guardian ad litem and by the defendant. After the plaintiff's birth the tests were made, the physicians, whose qualifications, competence and integrity are not questioned, reporting as follows:

Examination of the bloods of Charles Chaplin, Joan Berry and Carol Ann Berry give the following results:

	Group	Type
Charles Chaplin	O	MN
Joan Berry	A	N
Carol Ann Berry	B	N

Conclusion reached as the result of these blood grouping tests is that, in accordance with the well accepted laws of heredity, the man, Charles Chaplin, cannot be the father of the child, Carol Ann Berry. The law of heredity which applies here is "The agglutinogens A and B cannot appear in the blood of a child unless present in the blood of one or both parents."

Two of the physicians testified at the trial that the report truly represented their findings from the tests made. They and one other physician testified that by reason of said tests defendant was not and could not have been the father of the plaintiff. The report and the evidence of the physicians were not controverted by any scientific evidence but were before the jury to be considered with all the evidence in the case. According to the evidence, the so-called A and B test was discovered about 1900 and the M and N test about 1930. It may be argued that because defendant's blood was type MN and the bloods of both Miss Berry and plaintiff were type N, defendant might have been the father of the plaintiff. One physician testified "We could not have excluded him on such an incomplete test," and another "We could not rule him out." But it appears from the evidence that the M and N test was an incomplete test and study of the bloods of the respective parties, and that the A and B test was necessary to an authentic and complete report.

Were the blood tests conclusive that defendant was not the father of the plaintiff? The court held that they were not and based its holding on *Arais* v. *Kalensnikoff*, 10 Calif. (2d) 428, 74 P. (2d) 1043, the only reported case in California in which blood tests were used for the purpose of attempting to determine the parentage of a child. In that case the court held that the evidence concerning the blood test "is expert opinion because the conclusions reached by the examiner are based upon medical research, and involve questions of chemistry and biology with which a layman is entirely unfamiliar," but that such tests and the evidence thereof are not conclusive because not so declared by the code and further that expert testimony is to be given the weight to which it appears to be justly entitled. Continuing, the district court said, conceding the immutability of the scientific law of blood grouping, which we have no reason to question, the infallibility of the results of blood tests depends upon the skill employed in making them. Errors are reported due to (1) the lack of training of the serologist; (2) the use of commercial serums; (3) the failure to make a countertest. When scientific testimony and evidence as to facts conflict, the jury or the trial court must determine the relative weight of the evidence. The law makes no distinction between expert evidence and that of any other character. The decision in the Arais case, concluded the court, has been the subject of discussion and criticism in law reviews and other legal periodicals but not by other courts as far as we have been able to ascertain, and it remains the law of this state until modified or overruled by the court that rendered the opinion. Accordingly, the judgment in favor of the plaintiff was affirmed.

In a specially concurring opinion, one of the Supreme Court judges announced that he concurred in the judgment because of the fact that the court was bound by the decision of the Supreme Court in *Arais* v. *Kalensnikoff* but added that he believed that the Supreme Court was in error in its determination of that case. In his specially concurring opinion he said that the ascertainment of the factual truth in the adjudication of any controversy is a consummation devoutly to be wished. Time was when the courts could rely only on human testimony. But modern science brought new aids. The microscope, electricity, x-ray, psychology, psychiatry, chemistry and many other scientific means and instrumentalities have revised the judical guessing game of the past into an institution approaching accuracy in portraying the truth as to the actual fact where, in the pursuit of which, scientific devices may be applied. The chemical tests for learning the presence of poisons in the blood stream, application of the roentgen ray in defining the fracture of a bone, the use of the microscope in acquiring exact knowledge of the authorship of documents, of the presence of bacteria or of the prevalence of white corpuscles—all argue eloquently for a reliance on scientific devices for ascertaining the truth. If the courts do not utilize these unimpeachable methods for acquiring accurate knowledge of pertinent facts, they will neglect the employment of available, potent agencies which serve to avoid miscarriages of justice. In conclusion the concurring justice said in the case at bar a widely accepted scientific method of determining parentage was applied. Its results were definite. To reject the new and certain for the old and uncertain does not tend to promote improvement in the administration of justice.—*Berry v. Chaplin, 169 P. (2d) 442 (Calif., 1946).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Feb. 8, page 423.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various centers, March 17-19. *Part III.* Durham, Oct. 21-23. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral.* Los Angeles, April 11-12. Sec., Dr. P. M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various centers, March 24. Final date for filing application is Feb. 17. *Oral.* New York City, April 25-27. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Chicago, March 17. *Oral.* Chicago, April 24-26. Final date for filing application is Feb. 15. Asst. Sec., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY. *Oral.* Examination to be given during the Summer. Applications for examination will be accepted until Feb. 15. Sec., Dr. P. C. Bucy, 912 S. Wood St., Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part II.* Pittsburgh. June 1-7. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral. All Groups. Parts I and II.* Chicago, October. Final date for filing application is March 1. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* St. Louis, April 16-20. Chicago, Oct. 7-11. Sec., Dr. D. M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PATHOLOGY: Philadelphia, June 3-4. Final date for filing application is April 15. Sec., Dr. Robert A. Moore, Euclid Ave. and Kings Highway, St. Louis 10.

AMERICAN BOARD OF PEDIATRICS: Effective May 1, application fee will be $125.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Medicine, New York

1:583-714 (Dec.) 1946. **Partial Index**

Studies on Chronic Thyrotoxic Myopathy. G. W. Thorn and H. A. Eder.—p. 583.
*Disturbance in Salt and Water Metabolism in Hypertension. G. A. Perera and D. W. Blood.—p. 602.
Thiouracil in Angina Pectoris. W. S. Reveno.—p. 607.
Effects of Quinacrine (Atabrine) Suppression on Course of Pacific Vivax Malaria. I. M. London, P. H. Lavietes, K. E. Peterson and H. Most. —p. 615.
*"Muscle Spasm" in Acute Low Back Pain and Similar Syndromes: New Method of Treatment with Curare (d-Tubocurarine in Oil and Wax). E. B. Schlesinger and C. Ragan.—p. 621.
Subacute Bacterial (Streptococcus Viridans) Endocarditis Treated with Penicillin. R. L. McMillan.—p. 628.
Folic Acid and Bone Marrow in Radiation Therapy. P. L. Davis. —p. 634.
Clinical Vibrometer: Apparatus to Measure Vibratory Sense Quantitatively. W. S. Collens, J. D. Zilinsky and L. C. Boes.—p. 636.
Planning of Camp for Diabetic Children. H. J. John.—p. 642.

Disturbance in Salt and Water Metabolism in Hypertension.—Perera and Blood made observations on 12 control subjects and 12 patients with uncomplicated hypertensive vascular disease following the rigid withdrawal of sodium chloride for twenty-four hours. Despite an otherwise constant regimen, sodium restriction was followed by significant weight loss and increased urine output in control subjects which was not evident in hypertensive patients. The authors think that this difference in response indicates a disturbance in salt and water metabolism in hypertension referable to renal changes probably mediated by the adrenal cortex.

Curare in "Muscle Spasm" in Acute Low Back Pain.—According to Schlesinger and Ragan "muscle spasm" is often an integral part of the clinical picture of the acute low back syndrome. A suspension of d-tubocurarine in oil and wax has proved very useful in breaking up the muscle spasm. The difference in the response of patients exhibiting root compression from those with other types of disorders is described and is suggested as a diagnostic test. The use of d-tubocurarine in oil and wax for the prevention of deformity and alleviation of pain in early rheumatoid arthritis has led to promising results in a small group of patients.

American Journal of Public Health, New York

36:1245-1364 (Nov.) 1946

Laboratory Procedures in Sanitary Milk Control. A. H. Robertson. —p. 1245.
Training Public Health Personnel from Other Countries in United States. C. E. Shepard and W. W. Peter.—p. 1260.
World Health Organization: Cornerstone of Peace. T. Parran and F. G. Boudreau.—p. 1267.
Sanitary Engineer Looks Forward. A. Wolman.—p. 1273.
Insect Tests of Wire Screening Effectiveness. S. S. Block.—p. 1279.
*Analysis of Effect of Fat in Diet on Recovery in Infectious Hepatitis. C. L. Hoagland, D. H. Labby, H. G. Kunkel and R. E. Shank. —p. 1287.
Postwar Program for Abatement of Pollution in New York Harbor. R. H. Gould.—p. 1293.
Work of Interstate Sanitation Commission. S. G. Hess.—p. 1299.
In-Service Training in Rural Health Department. P. A. Bearg and Ruth Stockle.—p. 1304.
*Reverse Approach to Fluorine-Dental Caries Hypothesis. R. A. Downs and F. S. McKay.—p. 1307.

Fat in Diet During Recovery from Infectious Hepatitis.—Hoagland and his associates made a comparative study between the effects of a diet low in fat and high in protein and a diet relatively high in fat and high in protein on the period required for recovery in 70 patients with infectious hepatitis in whom there was moderate to severe acute liver insufficiency. No harmful effects were observed to follow the diet high in fat in patients in whom the intake of protein was kept correspondingly high. Indeed, the diet high in fat appeared to have decided advantages over the diet low in fat. With the former diet, weight loss was minimal in the acute stages of hepatitis and gain in weight maximal in convalescence. Added evidence of the superiority of the high fat, high protein diet was indicated by the results of serial tests of sulfobromophthalein retention, which revealed normal levels for the patients on the high fat, high protein diet earlier than the group on the high protein, low fat regimen.

Fluorine-Dental Caries Hypothesis.—Downs and McKay present a study that was brought about by reports from Montrose, Colo., that the dental caries rate was extremely high, and that the city water supply contained 1.4 parts per million of fluorine. A high dental caries rate and 1.4 parts per million of fluorine in the water supply do not usually exist together, and further investigation was deemed necessary. Examination of the high blood population revealed that some had a high rate of caries while others had fluorosis and a low rate of caries. A considerable number of the students with fluorosis had been born and reared in Spring Creek Mesa, where the water was obtained from deep wells. The pupils raised in these two districts—Spring Creek Mesa and the city of Montrose—only 5 to 10 miles apart, present a totally different picture in regard to dental caries. The only conclusion that could be reached was that the report which gave the fluorine content of the city water as 1.4 parts of fluorine per million was in error. This was established through a later analysis, which revealed that the correct fluorine content was 0.3 part per million.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

56:555-682 (Nov.) 1946

Problems in Abnormal Intestinal Physiology Associated with Peritoneal Adhesions and Ileus: Pancoast Lecture. R. Golden.—p. 555.
*Pulmonary Reaction Following Intrabronchial Instillation of Lipiodol in Bronchial Asthma. S. I. Kooperstein and H. E. Bass.—p. 569.
*Primary Amyloidosis of Lungs. P. R. Dirkse.—p. 577.
Roentgen Demonstration of Aberrant Pancreatic Nodule in Stomach: Report of 3 Cases. J. F. Roach and M. H. Poppel.—p. 586.
Report of Case of Ruptured Stomach in Infant 3 Days Old. E. P. Pendergrass and R. E. Booth.—p. 590.
Roentgen Diagnosis of Retroperitoneal Lipoma. F. Windholz.—p. 594.
Ankylosing Spondylitis: Report of Occurrence in Two Brothers. R. M. Stecher and H. Hauser.—p. 601.
Ossification of Coracoclavicular Ligament Following Dislocation of Acromioclavicular Articulation. A. B. Soule Jr.—p. 607.
Study of Lower Extremity Length Inequality. W. A. Rush and H. A. Steiner.—p. 616.
Large Sublingual Metallic Foreign Body: Report of Case. T. F. Leigh. —p. 624.
*Roentgen Treatment of Bursitis of Shoulder. B. R. Young.—p. 626.
Irradiation Sickness in Rats. C. G. Johnson, C. F. Vilter and T. D. Spies.—p. 631.
Unusual Skin Sensitivity to Roentgen Radiation: Report of Case. S. A. Leader.—p. 640.
Visit to Roentgen Laboratory in 1923. P. C. Hodges.—p. 642.

Intrabronchial Instillation of Iodized Oil.—Kooperstein and Bass report 3 cases of bilateral pneumonia which developed following intrabronchial instillation of iodized oil. The coincidence of the development of bilateral basal pneumonia in the portions of the lung fields previously instilled with iodized oil associated with hives and eosinophilia and occurring in known cases of bronchial asthma seemed to warrant further investigation. Sensitivity tests in the cases reported and in controls seemed to incriminate the iodized oil as the agent responsible for the acute pulmonary episodes. It is a matter of conjecture as to why more than a week passed before the onset of pneumonia, although there may be a relationship between the form in which iodine is present in poppyseed oil and its ability to act as a sensitizing agent. It is noteworthy that the time between instillation of iodized oil and onset of pneumonia resembled the "delayed reaction" of serum sickness.

Primary Amyloidosis of Lungs.—Dirkse says that, whereas the secondary type of amyloidosis, as it occurs in association with some chronic disease, is fairly familiar, the primary or atypical form, in which no antecedent condition appears to offer a background for the deposition of amyloid, is far less frequently

encountered. After listing the characteristics of the primary form, on which a diagnosis of atypical or primary amyloidosis, as opposed to the secondary type, may be based, the author adds to the growing list of cases of primary amyloidosis a case involving primarily the lungs, mediastinum, lymph nodes and spleen. He describes the x-ray characteristics of the intrathoracic form of this condition and reviews x-ray findings previously recorded in these and other organs.

Roentgen Treatment of Bursitis of Shoulder.—Young says that the results obtained with roentgen therapy in 87 patients with bursitis of the shoulder indicate that it is a valuable form of treatment for cases manifesting acute and subacute forms of the disease. All but 2 of the patients with acute bursitis were relieved of pain, and the majority were well in one week or less. The responses in the subacute group were not as prompt, but more than two thirds reported complete relief of pain in two weeks or less and only a few were not benefited. Only one third of the group with chronic symptoms were cured, and almost 50 per cent reported no relief of pain.

American Practitioner, Philadelphia

1:57-112. (Oct.) 1946

Diagnosis of Surgical Lesions of Thorax. V. Richards.—p. 57.
Streptomycin in Clinical Practice: Review and Case Reports. H. J. Morgan and J. S. Hunt.—p. 73.
Urologic Complications of Pregnancy and Labor. R. McCaffery and E. Hess.—p. 87.
Problem of Hypertension. A. Weinstein.—p. 95.
Salient Features of Diagnosis of Chronic Rheumatic Valvular Heart Disease: Illustrative Cases. D. W. Chapman and J. A. Greene.—p. 101.
Anesthesia in Geriatric Practice. R. A. Hingson.—p. 105.

Annals of Internal Medicine, Lancaster, Pa.

25:773-892 (Nov.) 1946

*Observations on Amebiasis in American Troops Stationed in India. G. Klatskin.—p. 773.
Management of Amebiasis. M. M. Karl and F. R. Sloan.—p. 789.
Acute Pericarditis: Study of 18 Cases Among Service Personnel. R. E. Smalley and J. C. Ruddock.—p. 799.
*Treatment of Hyperthyroidism with Propylthiouracil. E. B. Astwood and W. P. VanderLaan.—p. 813.
Observations on Use of Thiouracil. W. S. Reveno.—p. 822.
Diamidines in Chemotherapy: Survey of Recent Developments, with Note Regarding Therapeutic Trials in Patients with Rheumatoid Arthritis. E. F. Rosenburg.—p. 832.

Amebiasis in American Troops in India.—Klatskin reviews observations on 748 cases of amebiasis seen in American troops stationed in India. The clinical features were mild to moderate intermittent diarrhea, often accompanied with other gastrointestinal symptoms. Amebiasis was a common cause of urticaria and angioneurotic edema. Amebiasis of the liver was a common complication and varied in severity from an acute abscess to a low grade chronic hepatitis. Emetine alone cured 68 of the 69 cases. In some cases appendicitis appeared to be due directly to the ameba, while in others it appeared that the ameba had played a secondary role in opening avenues for bacterial infection. The most reliable diagnostic procedure was the demonstration of the trophozoites of Endameba histolytica in fresh stools passed after a large saline purge. The routine administration of moderate doses of emetine improved the end results of treatment with chiniofon, carbarsone and diodoquin. Serious toxic reactions were rare, even with large doses of emetine, when the patient was kept at bed rest and observed carefully.

Propylthiouracil in Hyperthyroidism.—Propylthiouracil having been proved the most active substance in several hundred compounds that have been studied in animals, it was used by Astwood and VanderLaan in 100 unselected cases of hyperthyroidism. Considerable individual variation in the minimal effective dose was observed, some patients requiring as little as 50 and some others as much as 150 mg. daily to restore metabolic equilibrium. It was concluded that 50 mg. every eight hours is approximately the optimal dose for the routine treatment of the more severe cases, that 50 mg. twice daily is adequate for milder ones, and that an effective dose should be continued until all manifestations of the disease have been controlled before smaller maintenance doses are substituted. The use of this medication was unattended with significant side effects.

Archives of Neurology and Psychiatry, Chicago

56:489-608 (Nov.) 1946

Effect of Glutamic Acid on Mental Functioning in Children and in Adolescents. F. T. Zimmerman, B. B. Burgemeister and T. J. Putnam.—p. 489.
Neurologic Mechanism for Certain Phenomena in Tetany. E. Kugelberg.—p. 507.
Circulation of Cerebrospinal Fluid in Carassius Gibelio. T. G. van Rijssel.—p. 522.
Electrical Resistance of Skin: Effect of Size of Electrodes, Exercise and Cutaneous Hydration. I. H. Blank and J. E. Finesinger.—p. 544.
*Neurologic Disease Following Infections of Throat and Skin and Incidence of Diphtheritic Infections. L. H. Bronson.—p. 558.
*Intravenous Injection of Sodium Amytal as Test for Latent Anxiety. S. Susselman, F. Feldman and S. E. Barrera.—p. 567.

Neurologic Disease After Infections.—Bronson says that a neurologic syndrome apparently infectious in origin has been reported among the members of the armed forces of the United States in the recent war. Some investigators have assumed that the disorder was caused by infection with Corynebacterium diphtheriae. There is, however, considerable reason to doubt that C. diphtheriae is the sole etiologic agent. Thirteen patients with a postinfectious neurologic syndrome were studied in a general hospital in Australia in 1943. Attempts to isolate a filtrable virus were unsuccessful. There was no evidence to suggest that the condition was the result of diphtheritic infection. Sixty patients with a similar disturbance were studied at Moore General Hospital in 1945. Of these, the neurologic syndrome followed proved cutaneous diphtheria in 5, proved faucial diphtheria in 2 and severe sore throat which was probably diphtheritic in 5 others. There was no evidence to suggest that diphtheritic infection had played any part in the disease of the remaining 48 patients.

Sodium Amytal in Testing for Latent Anxiety.—Susselman and his associates state that sodium amytal in doses of 1½ grains (0.1 Gm.) given intravenously will frequently relieve a symptom which is entirely due to tension within one to five minutes. The same amount of sodium amytal will relieve that portion of the symptom due to tension in instances in which tensional pain is superimposed on pain of organic cause. Thus sodium amytal can be used as a diagnostic test to separate symptoms of organic disease from tension symptoms. The test should be used only to supplement thorough physical and psychiatric investigation.

Archives of Otolaryngology, Chicago

44:517-646 (Nov.) 1946

Sarcoma of Larynx: Report of 8 Cases. L. H. Clerf.—p. 517.
Significance of Deep Epidural Abscesses in Pathogenesis of Otogenic Abscesses of Brain. F. Altmann and S. Karatay.—p. 525.
Appraisal of Fenestration Operation: Report of 100 Cases. K. M. Day.—p. 547.
Stenosis of Larynx of Limited Extent: Simplified Treatment. E. P. Cardwell.—p. 560.
Allergic Nose. K. M. Houser.—p. 565.
Progress in Otolaryngology: Summaries of Bibliographic Material Available in Field of Otolaryngology; Paranasal Sinuses. S. Salinger.—p. 585.

Bulletin New York Academy of Medicine, New York

22:563-620 (Nov.) 1946

Medical Genetics and Public Health: Twenty-First Hermann M. Biggs Memorial Lecture. L. H. Snyder.—p. 566.
Fibrous Dysplasia of Bone. H. L. Jaffe.—p. 588.
Surgical Principles in Wound Management. F. B. Berry.—p. 605.

22:623-678 (Dec.) 1946

*Indications for Surgery in Treatment of Gastric and Duodenal Ulcers. J. W. Hinton.—p. 623.
Observations on Dynamics of Systemic Circulation in Man. D. W. Richards Jr.—p. 630.
Human Bartonella Infection and African Sleeping Sickness. D. Weinman.—p. 647.

Indications for Surgery in Gastric and Duodenal Ulcers.—Hinton says that the patient with gastric ulcer is more likely to be recommended for an operation than the patient with a duodenal ulcer because of the danger of malignant degeneration in gastric ulcer. In not more than 10 per cent of gastric ulcers should there be a question as to the diagnosis. In the questionable cases an immediate operation should be

advised. Gastric ulcers respond more readily to medical management than do duodenal ulcers. The mortality from routine subtotal resections for gastric ulcer far exceeds the possibility of malignant degeneration in cases in which operation is not performed. Only those duodenal ulcers which fall in the chronic intractable group should be operated on. So-called pyloric obstruction is not an indication for operation. Massive hemorrhage in the majority of cases should be treated conservatively with blood transfusion.

Illinois Medical Journal, Chicago

90:201-248 (Oct.) 1946

Management of Persistent Occiput Posterior, with Note on Technic of Forceps Rotation by Stillman Procedure. D. N. Danforth.—p. 212.
Indications for Antibiotics (Penicillin and Streptomycin) in Urinary Tract Infections. R. D. Herrold.—p. 216.
*Vocational Rehabilitation in Illinois. E. F. Pearson and D. Darling. —p. 221.
Hazards in Use of Sedatives: Bromide Intoxication. F. G. Norbury. —p. 223.
Newer Aspects in Treatment of Liver Diseases. G. O'Brien.—p. 227.
Accidental Myiasis in Osteomyelitis Patient Within Well Screened Hospital. W. M. Reid and H. M. Camp.—p. 231.

Vocational Rehabilitation in Illinois.—It is the responsibility of the Illinois Division of Vocational Rehabilitation to help in the vocational rehabilitation of the estimated 56,000 persons who can be aided to become productive. Pearson and Darling think that members of the medical profession should be familiar with the division and its services in order to give information to the handicapped. The deaf and hard of hearing, epileptic, cardiac, tuberculous and blind patients, the orthopedically crippled, the mentally ill and others are eligible for service if there is a reasonable possibility that the individual will be able to engage in an occupation after rehabilitation. Services available include surgical care, medical care and psychotherapy, specialist's care in all fields, hospitalization up to ninety days for any one disability, physical therapy and occupational therapy, prosthetic devices and the like. After the patient is physically ready for employment he may be trained for a job. In Illinois it cost approximately $186 last year to rehabilitate an individual, but it cost as much as $500 each year to support a dependent handicapped person.

Journal of Experimental Medicine, New York

84:403-534 (Nov.) 1946

*Immunity in Experimentally Induced Infectious Hepatitis. W. P. Havens Jr.—p. 403.
*Immunity in Mumps: VI. Experiments on Vaccination of Human Beings with Formolized Mumps Virus. J. Stokes Jr., J. F. Enders, Elizabeth P. Maris and L. W. Kane.—p. 407.
Studies on Herpetic Infection in Mice: IV. Effect of Specific Antibodies on Progression of Virus Within Nervous System of Young Mice. C. A. Evans, H. B. Slavin and G. P. Berry.—p. 429.
Properties of T Antigens Extracted from Group A Hemolytic Streptococci. Rebecca C. Lancefield and V. P. Dole.—p. 449.
Pressure and Interstitial Resistance Prevailing in Normal and Edematous Skin of Animals and Man. P. D. McMaster.—p. 473.
Effects of Venous Obstruction on Interstitial Pressure in Animal and Human Skin. P. D. McMaster.—p. 495.
Chemical Studies on Host-Virus Interactions: I. Effect of Bacteriophage Adsorption on Multiplication of Its Host, Escherichia Coli B, with Appendix Giving Some Data on Composition of Bacteriophage. S. S. Cohen and T. F. Anderson.—p. 511.
Id.: II. Chemical Simulation of Interference Phenomenon by 5-Methyl Tryptophan. S. S. Cohen and T. F. Anderson.—p. 525.

Immunity in Infectious Hepatitis.—Havens found that 9 human volunteers convalescent from experimentally induced infectious hepatitis were resistant when reinoculated with the same strain of virus six to nine months later. Eight out of 12 previously healthy control subjects developed infectious hepatitis with jaundice following administration of this same material.

Vaccination with Formolized Mumps Virus.—Stokes and his associates inoculated active mumps virus into 41 vaccinated and 32 unvaccinated children after obtaining the consent of parents or guardians. The result obtained indicated that mumps virus obtained from the parotid gland of the infected monkey and inactivated by formaldehyde and then used as a vaccine increased the resistance of about half of those to whom it was administered.

J. of Industrial Hygiene & Toxicology, Baltimore

28:243-282 (Nov.) 1946

Evaluation of Beta and Gamma Radiation Due to Extended Linear Sources of Radium. R. D. Evans.—p. 243.
Determination of Mercury in Air. E. C. Barnes.—p. 257.
Further Studies on Sensory Response to Certain Industrial Solvent Vapors. L. Silverman, H. F. Schulte and M. W. First.—p. 262.
Case of Fatal Poisoning from 2-Methoxy-Ethanol. E. G. Young and L. B. Woolner.—p. 267.
Modified Cascade Impactor: Device for Sampling and Sizing Aerosols of Particles Below One Micron in Diameter. L. S. Sonkin.—p. 269.
Apparatus for Dispersing Finely Divided Dusts. L. S. Sonkin, M. A. Lipton and D. Van Hoesen.—p. 273.
Estimation of Sulfur Compounds in Air. B. Feiner, W. J. Burke and S. Moskowitz.—p. 276.
Industrial Hygiene Survey of Onion Dehydrating Plant. B. Feiner, W. J. Burke and J. Baliff.—p. 278.

Journal of Lab. and Clinical Medicine, St. Louis

31:1165-1278 (Nov.) 1946

Subcutaneous vs. Intramuscular Administration of Penicillin. W. S. Hoffman.—p. 1165.
Permeability Alterations in Disease. R. R. Overman.—p. 1170.
Glycocyamine Elimination in Patients with Myasthenia Gravis. Clara Torda and H. G. Wolff.—p. 1174.
Erythrocyte Fragility in Acute Infectious Hepatitis. D. F. Bohr, —p. 1179.
*Treatment of Macrocytic Anemia with Lactobacillus Casei Factor (Pteroylglutamic Acid). Grace A. Goldsmith.—p. 1186.
Studies in Iron Transportation and Metabolism: V. Utilization of Intravenously Injected Radioactive Iron for Hemoglobin Synthesis, and Evaluation of Radioactive Iron Method for Studying Iron Absorption. Reubenia Dubach, C. V. Moore and Virginia Minnich.—p. 1201.
Serum Lysolecithin in Rheumatoid Arthritis, Pregnancy and Jaundice and in Normal Persons. W. C. Kuzell and R. A. Davison.—p. 1223.
Retained Median Lethal Dose, Percentage Retention and Respiratory Response in Unanesthetized, Intact Rabbits and in Unanesthetized, Tracheotomized Dogs and Rabbits Exposed to Phosgene by Dosimetric Method. R. E. Weston and L. Karel, with technical assistance of D. R. LaGrave and P. A. Gogins.—p. 1227.
Chromogenic Reactions to Halogenation of Pregnancy Urine. A. C. Barnes.—p. 1240.
Some Observations on Severe Diabetic Ketosis Treated with Glucose and Insulin. A. P. Briggs.—p. 1244.
Effect of Glycerophosphate on Blood Coagulation and on Blood Clot Retraction. R. D. Barnard.—p. 1249.
Blue Fluorescent Substance in Urine. D. S. Stevens and G. F. Dick. —p. 1251.

Treatment of Macrocytic Anemia with Lactobacillus Casei Factor.—Goldsmith administered L. casei factor (pteroylglutamic acid) to 15 patients between the ages of 4 and 69 with anemia. The dose varied from 5 to 120 mg. daily. Five of the patients have been studied for more than six months. Two patients with pernicious anemia, 4 with nutritional macrocytic anemia and 1 with normocytic anemia in which the bone marrow was depressed showed pronounced clinical and hematologic improvement when L. casei factor was given as the sole therapeutic agent. Two patients with sprue and 1 with a celiac syndrome improved in certain respects, but the blood picture was altered in only 1 instance. L. casei factor was ineffective in the treatment of 2 patients with aplastic anemia and of 1 patient each with macrocytic anemia associated with regional ileitis and myxedema and macrocytic anemia of unknown origin.

Journal of Nutrition, Philadelphia

32:467-582 (Nov.) 1946. **Partial Index**

Nutritional Studies with Ducks: III. Niacin Deficiency. D. M. Hegsted.—p. 467.
Intravenous Utilization of Partial Acid Hydrolysates of Proteins. W. C. Risser, J. R. Schenck and D. V. Frost.—p. 499.
Protein Deprivation as Cause of Vascularization of Cornea in Rat. W. K. Hall, V. P. Sydenstricker, C. W. Hock and L. L. Bowles. —p. 509.
Dental Caries in Syrian Hamster: II. Preliminary Study of Effect of Three Different Rations on Caries Activity. P. H. Keyes.—p. 529.
Growth and Maintenance Utilization of Dietary Protein. R. H. Barnes, Mary J. Bates and Jean E. Maack.—p. 535.
*Observations on Pellagra in American Prisoners of War in Philippines. C. F. Lewis and M. M. Musselman.—p. 549.
Photosensitized Oxidation of Ascorbic Acid in Urine and Blood Serum. Mary L. Dodds, Florence L. MacLeod and Juanita Smith Carr. —p. 559.
Influence of Riboflavin Consumption on Its Concentration in Hen's Eggs. S. H. Jackson, T. G. H. Drake, S. J. Slinger and others.—p. 567.

Pellagra in American Prisoners of War in the Philippines.—Lewis and Musselman say that symptoms of pellagra first appeared with dramatic suddenness in August 1942. Within a week 500 men out of a camp of 5,000 presented signs and

symptoms of the disease. They complained of soreness and burning of their mouths and tongues. The tip of the tongue presented the typical raw, spotted appearance. Later ulcerations appeared on the tongue. The angles of the mouth became macerated and presented a perlèche-like membrane. A seborrheic lesion appeared about the alae of the nose and spread over the lips and chin. The skin lesions were more extensive than those usually described as pellagrous. Processed foods, a crude yeast culture and pure vitamin preparation were effective in controlling pellagra. Pure vitamin preparations were more effective when the diet was more adequate. The daily multivitamins utilized during 1944 reduced the incidence of the severe pellagra seen in 1942 and 1943.

Rocky Mountain Medical Journal, Denver

43:869-956 (Nov.) 1946

Health Insurance and the Nation. L. S. Goin.—p. 890.
*Dihydroergotamine (D. H. E. 45), New and Effective Drug in Treatment of Migraine. L. A. Pollock.—p. 895.
Management of Infertility of Short Duration. R. L. Young.—p. 897.

Dihydroergotamine (D. H. E. 45) in Migraine.—Pollock presents brief histories of 17 patients with migraine in which he employed dihydroergotamine, known also as D. H. E. 45. Prophylactic treatment (0.5 cc. once or twice a week) was found beneficial in prolonging the interval and easing the severity of attacks. During a full blown attack of migraine, 1 to 1.5 cc. intravenously aborts an attack within fifteen to twenty minutes in many cases. The substance is not particularly effective in hypertensive cases.

Union Médicale du Canada, Montreal

75:1241-1584 (Nov.) 1946. **Partial Index**

Late Adenopathy in Certain Cancers of Inferior Lip. A. Marin.—p. 1365.
Prenatal Examination. D. Marion.—p. 1372.
Part of Rh Factor in Erythroblastosis of Newborn. A. Bertrand.—p. 1384.
*Contribution to Study of Lipoma of Corpus Callosum. R. Amyot.—p. 1391.
*Angina Pectoris and Anemia. H. Gélinas.—p. 1407.
Purulent Tuberculous Pleurisy and Pleural Lavage. J. P. Paquette.—p. 1412.
Diverticula of Colon and Diverticulitis. A. Pettigrew.—p. 1438.
Hematogenic Role of Liver in Digestive Syndromes: Vitamin K, Sympathetic Nervous System, Action of Certain Hormones (7 Cases). J. LeSage and A. Arcand.—p. 1446.
Sterility. F. X. Demers.—p. 1462.
Elastose of Cholecyst: Anatomic, Clinical, Roentgenologic and Pathogenic Considerations on So Far Neglected Lesion of Gallbladder. J. L. Riopelle.—p. 1486.
Thyroidectomy Under General Anesthesia. M. Plamondon.—p. 1513.
Classification of Rheumatismal Syndromes. R. Dandurand.—p. 1517.
Splenectomy and Diseases of Blood. R. Dussault.—p. 1523.
Treatment of Refractory Otitis in Suckling Infant with Injections of Penicillin in the Tympanic Cavity. N. Vézina.—p. 1557.

Lipoma of Corpus Callosum.—Amyot reports a lipoma of the corpus callosum in a woman aged 39 who since her childhood had suffered from severe headache and for the last four years from convulsive attacks. Diagnosis was made with the aid of pneumoencephalography. A mental syndrome of frontal type and a right hemiplegia resulted from the surgical removal of the lipoma. This postoperative neuropsychic symptomatology may be ascribed to the lesion of the corpus callosum associated with a left frontal softening.

Angina Pectoris and Anemia.—Gélinas reports the occurrence of pernicious anemia associated with angina pectoris in a man who for the past few months had suffered from severe retrosternal pain on walking, from anorexia and from weakness. The blood count revealed 1,400,000 red and 4,000 white blood corpuscles. The hemoglobin was reduced to 42 per cent. The patient received six intramuscular injections of 2 cc. of liver extract containing 15 antianemic units per cubic centimeter in ten days. The retrosternal pains subsided within five days. In the absence of any other treatment, one injection of 2 cc. of the liver extract twice a month was sufficient for the control of the anemia. The patient did not experience any precordial pain for four years.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:761-804 (Nov. 23) 1946

Physiologic Rest, with Special Reference to Arthritis and Nerve Lesions and to Manufacture of Appliances. N. Capener.—p. 761.
Effect of Certain Social Conditions on Health of School Children. E. R. Bransby, J. L. Burn, H. E. Magee and D. M. MacKecknie.—p. 767.
Evaluation of Barrier Creams. C. G. A. Sadler and R. H. Marriott.—p. 769.
Aid to Measurement of Venous Filling in Neck in Congestive Heart Failure. A. W. D. Leishman.—p. 773.
Coronary Disease: Passages from Harveian Oration. M. Cassidy.—p. 782.
Deficiency Neuropathies Observed in Madrid During the Civil War (1936-1939). M. Peraita.—p. 784.

2:805-844 (Nov. 30) 1946

Chemotherapy of Tuberculosis: Research During Past 100 Years (Part I). P. D'Arcy Hart.—p. 805.
*Weil's Disease: Rare Condition? K. Robertson.—p. 810.
Unusual Case of Weil's Disease. H. Jackson and S. Oleesky.—p. 813.
Gravity Drainage in Prone Position in Treatment of Digestive Fistulae of Abdominal Wall. D. H. Patey, J. H. L. Ferguson and M. D. Exley.—p. 814.
Case of Cerebral Malaria in Great Britain. J. B. Ryder and R. T. Towson.—p. 815.
Kala Azar with Onset of Symptoms in Great Britain. A. Feldman.—p. 816.

Weil's Disease.—Robertson reports 40 cases of Weil's disease occurring between the ages of 5 and 78 years. The condition was encountered four or five times every year during the period of the last ten years. Nearly 50 per cent of the cases have been diagnosed within the first four days of the illness and specific treatment started. The blood urea level has been raised from the earliest stages in all the cases. Its determination is the most important single pathologic investigation. A careful inquiry into the patient's work, home surrounding and habits with regard to bathing in fresh water is of the utmost importance. Twelve patients have been given specific antileptospiral serum during the first four days of the illness and one other received penicillin within the first two days. In this group there has been no mortality. This compares favorably with the remainder of the patients, none of whom received treatment until after the fourth day and among whom there were six fatalities—a mortality of 30 per cent. Penicillin when used freely during the early septicemic stage may be of greater usefulness than serum. Fifty per cent glucose intravenously (50 cc. every eight hours) proved valuable. The mechanism of cortical renal ischemia is of great importance in the etiology of the syndrome of water and nitrogen retention seen in the more severe cases of Weil's disease and may explain the apparent success of spinal analgesia in reestablishing renal function by invoking sympathetic release. The need for early use of this treatment in oliguric cases is emphasized.

Lancet, London

2:739-778 (Nov. 23) 1946

Absorption and Excretion of Water: Antidiuretic Hormone. E. B. Verney.—p. 739.
*Lung Lesions in Skeletal Tuberculosis: Review of 500 Cases. K. J. Mann.—p. 744.
*Anuria Treated by Renal Decapsulation and Peritoneal Dialysis. R. Reid, J. B. Penfold and R. N. Jones.—p. 749.
Acute Infectious Mononucleosis Complicated by Encephalomyelitis: Report of Case. S. Geliebter.—p. 753.
Repeated Abortions, Miscarriages and Stillbirths: Value of Antisyphilitic Treatment. R. G. Cross.—p. 754.

Lung Lesions in Skeletal Tuberculosis.—Studies of the respiratory tract of 500 patients with skeletal tuberculosis revealed active pulmonary lesions in 284, or 57 per cent. This is in agreement with figures obtained by other observers. The primary complex was found in most of the children, and hematogenous foci in adults. The respiratory tract thus appears to be the route of entry of the tubercle bacillus even in skeletal tuberculosis. The infecting organism is therefore

most likely to be the human type from human open pulmonary cases. Milk infected with bovine tubercle bacilli can no longer be considered an important source of skeletal tuberculosis. The skeletal lesion in most children originates soon after the primary infection. In most adults it is due to reactivation of quiescent tuberculous foci resulting in blood stream dissemination and subsequent implantation in bone and lung. Mann emphasizes the importance of routine radiography of the chest in the diagnosis and prognosis of skeletal tuberculosis.

Anuria Treated by Renal Decapsulation and Peritoneal Dialysis.—Reid and his associates report a case in which an incompatible blood transfusion was followed by uremia. It was unsuccessfully treated by all the commonly recognized methods and finally yielded to decapsulation of the kidneys, the associated uremia being relieved by the use of the peritoneum as a dialysing membrane. Twice normal saline solution was given intraperitoneally by drip injection, and later the fluid was drained off. By this method much urea was eliminated by dialysis through the peritoneum, with relief of uremic symptoms. Reid and his associates state that the patient, a woman, fully recovered.

Medical Journal of Australia, Sydney

2:613-648 (Nov. 2) 1946

Zoological Position of Man. A. N. Burkitt.—p. 613.
Some Recent Changes in Outlook for Child. F. V. G. Scholes.—p. 617.
Modern Treatment of Pulmonary Tuberculosis. C. H. Fitts.—p. 622.
Portable, Self-Contained Apparatus for Induction and Maintenance of Continuous Intravenous Anesthesia, with Some Observations on Use of "Pentothal Sodium." R. V. Pratt.—p. 626.
Effect of Intravenously Administered Antimony Compounds on Pyogenic Skin Lesions. A. T. H. Jolly.—p. 630.

South African Medical Journal, Cape Town

20:687-730 (Nov. 23) 1946. **Partial Index**

Facts About Alcoholism. L. Bosman.—p. 688.
*Curare in Shock Treatments for Mental Disorders. M. J. Cohen.—p. 706.
Some Pharmacologic Aspects of Sulfonamides, Penicillin and Streptomycin. N. Sapeika.—p. 708.
Extraperitoneal Cesarean Section. P. H. Oosterhagen.—p. 712.
*Another Case of Successful Prostatectomy in the Tenth Decade. W. de V. Scholtz.—p. 718.

Curare in Shock Treatments for Mental Patients.—Cohen used curare in the form of intocostrin in treating 14 patients undergoing shock treatment for psychoses. He found it most useful. Not only does it prevent fractures and painful spasm of muscles, but in cases in which painful spasm already exists curare can be used to allow treatment to proceed. It was quite common formerly to drop treatments owing to painfulness. Alcoholic addicts do not respond so well to this treatment. Cyanosis and respiratory difficulties are greater. Hence neostigmine should be used to neutralize the curare as soon as the convulsions are over. There is less recollection of the treatment and less fear if curare is used with shock therapy.

Successful Prostatectomy in the Tenth Decade.—Scholtz adds his report of a successful two-stage suprapubic prostatectomy performed on a man aged 91 to a report of 2 similar cases treated by Frater. The patient continued to be well more than two years later.

Presse Médicale, Paris

54:665-676 (Oct. 12) 1946

Traumatic Tuberculosis. P. Moiroud.—p. 665.
*White Blood Formula in Cirrhoses of Liver. P. de Graciansky and M. Mouzon.—p. 665.
Consequences of World War II in Czechoslovakia from Psychiatric Point of View. O. Janota.—p. 667.

White Blood Formula in Cirrhoses of Liver.—De Graciansky and Mouzon studied the white blood picture in 114 cases of cirrhosis of the liver. Seventeen cases of cirrhosis associated with pulmonary or cutaneous infection, with massive visceral hemorrhage and cases of Banti's disease were excluded as possible sources of error. Neutrophil polynucleosis was demonstrated in 92 of the remaining 97 cases, and it was associated with a myelocyte reaction in 19 cases. The importance of the neutrophil polynucleosis equals that of anemia and of thrombopenia in the hematologic syndrome of cirrhosis; in addition, the neutrophil polynucleosis represents an element of unfavorable prognosis. Essential eosinophilia may on the contrary be considered a favorable sign, while aneosinophilia suggests an unfavorable prognosis.

Journal Belge d'Urologie, Brussels

14:345-398 (Aug.) 1946

Retropubic Prostatectomy. T. Millin.—p. 345.
My First Retropubic Prostatectomies (Millin's Operation). A. C. Wasterlain.—p. 357.
Ureter of Ptotic Kidneys and Nephropexy. M. Chevassu.—p. 367.
Ureterography of Pelvic Ureter. M. Chevassu.—p. 373.
*Treatment of Cancer of Prostate with Estrogenic Substances. J. A. Weijtlandt.—p. 375.

Treatment of Cancer of Prostate with Estrogenic Substances.—Weijtlandt treated 12 patients with cancer of the prostate with estrogenic substances. In general intramuscular administration is preferred with 5 mg. of diethylstilbestrol or 10 mg. of dimenformon (estradiol) daily for two to three weeks. The same dose may then be administered three or two times or once a week. After one or two months of this treatment a weekly maintenance dose of 2.5 mg. of diethylstilbestrol or 5 mg. of estradiol is suggested. No untoward reactions were observed in spite of large total doses up to 1,000 mg. except for occasional gynecomastia, which subsided when the treatment was discontinued.

Schweizerische medizinische Wochenschrift, Basel

76:1051-1074 (Oct. 12) 1946

Maturation Period, Duration of Mitosis and Daily Changes in Granulated Leukocytes. S. Moeschlin.—p. 1051.
*Diagnosis of Splenic Rupture. J. Bieri.—p. 1053.
*Use of Emetine in Pyogenic Infections. E. Melchior.—p. 1054.
Influence of Sauna (Finnish) Bath on Cold Reactions of Cutaneous Vessels. W. Jung.—p. 1058.
Practice of Plasma Transfusions. S. von Salis.—p. 1062.

Diagnosis of Splenic Rupture.—Bieri observed lymphopenia in the presence of leukocytosis within a few hours after rupture of the spleen in 3 cases. For instance there was a decline in lymphocytes from 10 per cent to 3 per cent in one hundred and five minutes and from 16 per cent to 7 per cent in ninety minutes. Thus, if splenic rupture is suspected the diagnosis can be corroborated by investigation of the number of lymphocytes. The blood picture should be examined also in intra-abdominal hemorrhages that are not caused by splenic rupture.

Emetine in Pyogenic Infections.—Melchior found that hepatic abscesses observed in Ankara respond to emetine, although the majority of these abscesses are not caused by amebic dysentery. Emetine has proved effective also in nonamebic pulmonary abscesses and in various acute surgical infections that are accompanied with pus formation. The author presents 17 cases in which emetine proved successful after surgical treatment alone had failed to cure. The cases included among others postoperative peritonitis, furuncles, phlegmons, pleural empyemas, septicemia, renal abscess and dental infections.

Medicina, Madrid

14:165-244 (Sept.) 1946. **Partial Index**

*Comparative Study of Skin Reactions to Injections of Either Tuberculin or BCG Cultures. F. Civeira and R. Urioste.—p. 175.
Atypical Pain in Coronary Infarct. M. M. Frade Fernández.—p. 179.

Skin Reactions to Tuberculin and BCG Cultures.—Civeira and Urioste gave intracutaneous injections of solutions of either tuberculin or BCG in progressive concentrations to 18 patients with tuberculosis. The concentrations used for the first injections were 1: 1,000,000 for tuberculin and 1 : 10,000,000 for the BCG cultures. A reaction of visible and palpable infiltration and erythema 10 mm. in diameter denoted the threshold of positivity. There is no relation between the threshold of positivity to the injection of tuberculin and to that of BCG cultures. The type of skin reaction is different for

one or the other reactive agent. High concentration of BCG cultures may cause either local false reaction because of a personal sensitization to albumin or local formation of minute abscesses. The causes and mechanism of either tuberculin or BCG positive reaction are different.

Wiener klinische Wochenschrift, Vienna

58:621-640 (Oct. 25) 1946

*Panaris and Its Treatment During Office Hours. E. Domanig.—p. 621.
Diseased Heart. H. Schnetz.—p. 622.
Focal Infection in Internal Medicine. J. Sandhofer.—p. 626.
Treatment of Fractures by Practitioner. J. Hohenwallner.—p. 628.
Pelvic Presentation and Its Treatment. J. Wegleiter.—p. 629.
Antisyphilitic Treatment. H. Rotter.—p. 631.
Pulmonary Tuberculosis in Children. G. Zederbauer.—p. 633.
Acute Otitis. Chlanda.—p. 635.
Roentgen Treatment of Acute and Chronic Unspecific Inflammations. H. Stech.—p. 637.

Panaris.—Domanig considers progressive panaris an emergency which requires immediate surgical intervention under conduction anesthesia with 2 cc. of a 2 per cent procaine hydrochloride solution or under mild narcosis. Deep proximal and distal incisions should be made at the area of the most pronounced swelling and of the severest pain; they should be extended to the healthy tissues under visual control, which may be insured by using Esmarch's bandage. Patients with involvement of tendon sheet should be admitted to a hospital. Immobilization with splint and plaster of paris cast is imperative, and change of dressing should not be performed earlier than on the fifth or sixth postoperative day.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

90:1291-1358 (Oct. 5) 1946

Reversible Form of Megacolon. F. L. J. Jordan.—p. 1292.
Bronchogenic Cyst of Mediastinum. L. D. Eerland.—p. 1295.
Spinous Processes of Human Vertebral Column. E. J. Slijper.—p. 1298.
Treatment of Scabies Among Prisoners of War in India. R. D. G. P. Simons.—p. 1307.
Experimental Epidemic Hepatitis. J. D. Verlinde.—p. 1309.
*Treatment of Lupus Vulgaris with Vitamin D_2 and Calcium. E. H. Hermans.—p. 1312.

Vitamin D_2 and Calcium for Lupus Vulgaris.—The new treatment for lupus vulgaris recommended by Hermans was first described by Charpy in 1943. During the first week of treatment the patients are given 3 times 15 mg. of vitamin D_2 in alcoholic solution (1 mg. contains 40,000 units). After that they are given the 15 mg. twice a week. The calcium is provided by giving from 1 to 2 liters of milk daily and on twenty days each month 0.5 Gm. of calcium gluconate. This form of oral heliotherapy has produced favorable results, but it involves some danger of excessive dosage of vitamin D.

Acta Medica Scandinavica, Stockholm

125:191-294 (Aug. 31) 1946

*Thresher's Lung: Fungoid Disease Resembling Tuberculosis or Morbus Schaumann. E. Törnell.—p. 191.
Blood Changes Brought on by Metastatic Invasion of Bone Marrow. P. Dustin Jr.—p. 220.
*Erythroblastosis in Adults. N. G. Nordenson.—p. 236.
Infections of Urinary Tract: I. Frequency of Urinary Infections. L. Loopuyt.—p. 245.
Necrobiosis Lipoidica Diabeticorum. D. Elstad.—p. 257.
Treatment of Hyperthyroidism with Methylthiouracil. P. Magnusson and G. Sorensen.—p. 263.
*Occurrence of Diphtheria in Recent Years, with a Special View to Influence of Antidiphtheric Vaccination. V. Mortensen.—p. 283.

Thresher's Lung.—Törnell describes 8 cases of thresher's lung. This condition is caused by the inhalation of dust from molded ("burned") grain. In the severe cases the onset is sudden, accompanied with shivering, fever, malaise and cough with mucopurulent or sanguinolent expectoration and dyspnea. Eye symptoms and rhinitis may also occur. The clinical signs include a bronchial catarrh at the bases with dry subcrepitation, mild leukocytosis and an increased sedimentation rate. The x-ray picture resembles that of miliary tuberculosis. In severe cases the densities increase and merge into a disseminated patchy fibrosis with bronchiectasis. Cultivation of sputum samples on Sabouraud's medium yields Monilia, a yeastlike fungus; that is, thresher's lung is a bronchomoniliasis. Treatment with potassium iodide seemed to exert a noticeable influence on the mild cases of thresher's lung.

Erythroblastosis in Adults.—Nordenson reports 3 cases of erythroblastosis in adults. The disease is chronic, and the anemia is resistant to all treatments. There is considerable splenomegaly, and the red and white blood pictures are very immature because of an extramedullary hemopoiesis, which can be demonstrated by a splenic puncture. Even in cases in which the blood picture is atypical there exists a characteristic splenogram. The sternal marrow is hypoplastic. The liver function seems to be normal, and there are no signs of increased hemolysis. The etiology of the disease is unknown, and there is no effective treatment. Splenectomy is contraindicated.

Diphtheria in Recent Years.—Reviewing a material of 573 cases of diphtheria from the period between 1939 and 1945, Mortensen finds that diphtheria has been more frequent in 1944 and 1945 than during the preceding years. The age distribution has shifted in that in 1944-1945 only about one third of all the patients were children, as against about three fourths in the preceding years. Antidiphtheric vaccination has protected the children. The case mortality was 9.3 per cent for the nonvaccinated patients and 1.1 per cent for the vaccinated. The disease was milder in the vaccinated patients than in the nonvaccinated, and complications were far more frequent in the latter. Among the factors that contributed to the rise in diphtheria morbidity the author mentions greater possibilities of infection owing to poor hygienic conditions during the war and lowered resistance in the last years of the war.

125:295-394 (Sept. 7) 1946

*Paroxysmal Tachycardia, Transitory Flutter and Fibrillation. O. Jervell.—p. 295.
Treatment of Leukopenia and Granulocytopenia with Pyridoxine (Vitamin B_6). D. Knutson, C. O. Oldfelt and P. Wising.—p. 326.
Hydremia in Acute Nephritis. E. L. Cardozo.—p. 333.
*Patent Ductus Botalli in Three Sisters. H. Kjaergaard.—p. 339.
Contribution to Knowledge of Acute Primary Atypical Pneumonia. H. Stenqvist.—p. 345.
Infections of Urinary Tract: II. Therapeutic Results. L. Loopuyt.—p. 357.
Addison's Disease: I. Remarks Regarding Its Clinical Features, Prognosis and Treatment Based on 30 Recorded Cases. O. J. Broch.—p. 371.
Index of Renal Tubular Reabsorption. J. A. Barclay and R. A. Kenney.—p. 386.

Paroxysmal Tachycardia, Transitory Flutter and Fibrillation.—Jervell investigated 168 cases of paroxysmal tachycardia, including cases of transitory flutter and flutter with fibrillation. This group included 67 cases of degenerative heart disease, 16 with rheumatic, 4 with syphilitic and 11 with thyrotoxic disorders. Seventy patients had no signs of organic heart disease. Among 34 cases of flutter or fibrillation without organic heart disease there was only 1 case of permanent fibrillation. In the other cases the flutter or fibrillation subsided either spontaneously or after treatment. Paroxysmal tachycardia and transitory flutter and fibrillation are probably due to the same causes. The predisposing factor is assumed to consist of structural alterations in the muscle. Besides degenerative and rheumatic disorders of the myocardium, infections, adiposity and other disorders may be imagined to produce functional derangements. In some cases flutter or fibrillation follows physical exertion, and it is suggested that certain persons are predisposed to flutter and fibrillation. Increased tonus of the sympathetic probably plays a part in most cases. A number of case histories are reported which support the view that both a predisposing and a provocative factor play a part in paroxysmal tachycardia and transitory flutter and fibrillation.

Patent Ductus Botalli in Three Sisters.—Kjaergaard describes the histories of three sisters in a family of five children who had patent ductus Botalli. The parents were well, not related and gave no history of heart lesions. The oldest daughter, aged 11, and a boy aged 2 were free from the cardiac defect, but 3 girls aged 7 years, 6 years and 11 months, respectively, had patent ductus Botalli. The author thinks that the entire family ought to be examined whenever an instance of patent ductus Botalli is ascertained and also when any other form of congenital heart lesion is encountered.

Book Notices

The Child from Five to Ten. By Arnold Gesell, M.D., Director of the Clinic of Child Development, School of Medicine, Yale University, New Haven, Connecticut, and Frances L. Ilg, M.D., Assistant Professor of Child Development. In collaboration with Louise Bates Ames, Ph.D., and Glenna E. Bullis. Cloth. Price, $4. Pp. 475, with illustrations. Harper & Brothers, 49 E. 33d St., New York 16; 90 Great Russell St., London W. C. 1, 1946.

This book, by the director and staff members of Yale Clinic of Child Development, is a campanion work to the earlier volume "Infant and Child in the Culture of Today" (1943). It is based on studies of 50 or more children at age levels 5, 5½, 6, 7, 8, 9 and 10 years. The observations at each level are systematically referred to ten major "fields of behavior," i. e. motor characteristics, personal hygiene, emotional expression, fears and dreams, self and sex, interpersonal relations, play and pastimes, school life, ethical sense and philosophic outlook. After a presentation in cross section of child life at the several age levels the ten areas of behavior are reviewed in panoramic fashion.

The study evidences the carefulness of observation that has made the work of the Yale Clinic such an important contribution to our knowledge of child development. Authentic, lively, realistic descriptions of how children behave, what they say and do and how they react to their environment are presented. The emerging patterns of behavior, modified by the maturing of the developing organism, are traced. The authors are sound in their emphasis on the total complex of a behaving organism in a changing environment.

Yet the student of child life and the clinician will sense the deep lack in this work, the lack that consistently characterizes the fine work of the Yale Clinic. Despite the authors' emphasis in the final chapter on "developmentalism" the work remains consistently on the descriptive level and lacks the dynamic quality that can be imparted to any account of the mental life of a human being only through a synthesizing, dynamic psychology. Such a psychology lurks at the fringes of the authors' comments and is almost desperately sought for in an attempt to attain the needed synthesis. Those aspects of childhood life that have to do with the more subjective mental life, i. e. emotional expression, fears and dreams, self and sex and ethical sense, carefully documented as they are, lose much of their meaning unless understood in terms of the dynamic interplay of psychologic forces actually observable in childhood life. This is not specifically acknowledged or recognized by the authors in relation to their own work. That they are by no means insensitive to this is evidenced by the fact that the best presentation of the subjective state of a child is not derived from their observations but quoted from the autobiographic work of Edmund Gosse. The profound implication to the child on discovering that the father is not infallible is made vividly clear by Gosse's account. Perhaps the "clinical observer" might with some justice maintain that we cannot "observe" a child's subjective state—perhaps we must rely on his ability to report it at a later date. However, a wealth of clinical observation bearing on the subjective life of the child is available in the works of child psychologists and psychoanalysts, together with precisely the sort of integrating dynamic concepts of the development of the childhood personality useful to an understanding of the facts reported so carefully in this work. Indeed, such recording of precise observation is what is required to correct, modify or confirm the current theories of child development.

Also revealing the lack of a basic dynamic psychology is the statement of the authors, in commenting on the possible fate of mankind, that "the intrinsic charm and goodness of childhood still constitute the best guaranty of the further perfectibility of mankind" (page 453). This is a charming sentiment but a highly unscientific statement. The development of ethical concepts furthering a higher order of society is dependent on a process involving the relationship of developing children with ethical parents; processes which involve early conditioning, introjection and identification eventually enable the child to assume the responsible attitudes of the mature adult. It is this process that could profitably be an object of study by the authors of this important book.

The Diagnosis and Treatment of Bronchial Asthma. By Leslie N. Gay, Ph.B., M.D., Assistant Professor of Medicine of the Johns Hopkins University School of Medicine, Baltimore. With a foreword by Warfield T. Longcope, A.B., M.D., Professor of Medicine of the Johns Hopkins University School of Medicine, Baltimore. Cloth. Price, $5. Pp. 334, with 80 illustrations. The Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1946.

The author has had about twenty-five years of experience in the field of allergy at Johns Hopkins University and in private practice. This book is an accounting of his experience and is most interesting both because he is a pioneer in this field and because of his special investigations in several aspects of the problems.

The book deals with the physiology of normal respiration and that observed in asthma and then takes up the etiology, pathology, diagnosis, differential diagnosis, complications and treatment of asthma. There is an excellent chapter on the pathology of asthma, with a detailed description of autopsy findings in 24 patients in whom asthma was the sole cause of, or was a factor in, death. The psychosomatic aspects of asthma are well portrayed, better than in any other book on the subject. Many case reports are given, and there are numerous illustrations and tables. The relationship of the nose and nasal sinuses to asthma is well stated, though many physicians are reluctant to advise nasal surgical intervention as frequently as does this author.

This book is not well balanced. The author failed to realize that in a relatively small book he has devoted far too much space to the particular subjects in which he has done special investigative work. Among these are pathology of asthma, the use of potassium salts, oral ragweed treatment, allergic rhinitis, ephedrine and the use of radium for adenoid tissue. His essays on the discovery of helium and on the virtues of Bermuda as a hay fever resort are entirely out of place. In all these subjects a shorter discussion would have been better, and the interested reader should have been referred to other sources for more information. Because of this excessive waste of space there is much too little discussion on the more ordinary but more important phases of treatment. The chapter on etiology is meager; important causes of asthma, e. g., horse dander, are hardly mentioned. More space should have been given for treatment so that the average medical student or physician could better treat his asthmatic patients.

The role of foods in asthma is belittled, though most observers feel that foods are important. There are no diet lists and nowhere can the source of allergens be found. The index is inadequate; it contains no reference to such important allergens as cottonseed and dog, cat or horse dander. Although house dust is an important cause of asthma, there are no special instructions to patients on how to reduce exposure.

Mixtures of extracts, e. g. pollen from ragweed, grass and tree, are given. Many workers object to this procedure because one cannot safely raise dosages during the respective pollen seasons, yet the aim of all is to reach the highest dosage just before the pollen season. The addition of a potent allergen, as cottonseed, to such a mixture is extremely dangerous and ill advised.

The author states (page 120) that "the inaccuracy of this procedure (skin tests by the scratch method) has been recognized by experience and the majority of authorities on this subject prefer the more readily controlled intracutaneous method." This statement is challenged. The scratch tests are widely used and are informative, and they are perfectly safe. Fatalities have occurred and continue to occur even in the hands of specialists who inject their extracts without preliminary scratch tests. Both methods should be used. The bibliography is rather small, though probably sufficient for a book of this size.

Encyclopedia of Psychology. Edited by Philip Lawrence Harriman and Written by Many Contributors. Fabrikold. Price, $10. Pp. 897, with illustrations. The Philosophical Library, Inc., 15 E. 40th St., New York 16, 1946.

The 900 pages of this book bear testimony to the tremendous accretion of knowledge in this social science. More than 80 eminent psychiatrists, psychologists, psychoanalysts and educators contributed to it, and the mass of the material is well nigh sufficient in its scope to deter the average physician from even

beginning to read it. If, however, he can accumulate the time and the courage he will find here much that will be exceedingly useful to him in the problems of his practice. He will wish, however, to read selectively in the special fields related to his medical practice. A mere glance at the headings, such as "Climate and Human Behavior," "Feeblemindedness," "Hypnoanalysis" and "Lobotomy," give an indication of the scope of the book. Each of the sections, which are arranged alphabetically, is supplemented with an extensive bibliography.

Principles of Hematology with 106 Illustrative Cases. By Russell L. Haden, M.A., M.D., Chief of the Medical Division of the Cleveland Clinic, Cleveland, Ohio. Third edition. Cloth. Price, $5. Pp. 366, with 171 illustrations. Lea & Febiger, South Washington Square, Philadelphia 6, 1946.

The third edition of this excellent book adds the technic of bone marrow puncture and the analysis of the marrow films. The section on technic is extremely comprehensive, and the illustrations are unusually good. The subject matter is treated from the point of view of the mechanism of normal and disturbed hematopoiesis, rather than the systematic consideration of disease entities. One hundred and six short clinical abstracts are given, illustrating types of blood abnormalities encountered in practice. A consideration of the Rh factor (and erythroblastosis) was intentionally omitted by the author to simplify the discussion of fundamental principles. The book is an ideal introduction to the subject and should serve to present hematology as a dynamic, rather than a purely morphologic, study.

Astrophysique. Le sang: Structure des hématies; la molécule d'hémoglobin, molécules de folliculine, de lutéine et de testostérone; coagulation du sang; maladies de la nutrition. Par le Docteur G. Froin. Paper. Price, 240 francs. Pp. 228, with illustrations. Girardot et Cie, 27, Quai des Grands-Augustins, Paris, 6e, 1946.

The most remarkable feature of this book is that the date is 1946 instead of 1346. It sets the clock back at least six centuries, possibly more. In a series of most curious diagrams, there is a startling combination of chemical formulas with the names of the different planets and references to the north and south poles. The application of astrophysics to the chemical constitution of the blood, sex hormones and nutritional maladies is not new, having been treated by the Chaldean metaphysicians, but the present treatise brings it up to date. The book makes a valuable contribution to modern medical curiosities.

A Memoir to the Academy of Sciences at Paris on a New Use of Sulphuric Ether. By W. T. G. Morton. Presented by M. Arago in the Autumn of 1847. With a foreword by John F. Fulton. Publication No. 14, Historical Library, Yale Medical Library. Paper. Price, $1.50. Pp. 24. Henry Schuman, 20 East 70th St., New York 21, 1946.

The Centennial of Surgical Anesthesia: An Annotated Catalogue of Books and Pamphlets Bearing on the Early History of Surgical Anesthesia Exhibited at the Yale Medical Library, October 1946. Compiled by John F. Fulton, M.D., and Madeline E. Stanton, A.B. Paper. Price, $4. Pp. 102, with 9 illustrations. Henry Schuman, 20 East 70th St., New York 21, 1946.

With an introduction by Dr. John F. Fulton, the publisher makes available a letter sent by W. T. G. Morton to the Academy of Sciences at Paris. The letter gives the background of the discovery and states clearly the evidence on which are based his claims in relation to those of Wells and Jackson.

Simultaneously, the same publisher makes available an annotated catalogue of books and pamphlets bearing on the early history of surgical anesthesia. Any physician interested in the background of what is perhaps the second greatest discovery ever made in medical science will wish to have a copy of this excellent historical contribution.

Dentistry: An Agency of Health Service. By Malcolm Wallace Carr, D.D.S., Director of Oral Surgery and Visiting Oral Surgeon, Metropolitan Hospital, New York. Studies of The New York Academy of Medicine, Committee on Medicine and the Changing Order. Cloth. Price, $1.50. Pp. 219. The Commonwealth Fund Division of Publications, 41 E. 57th St., New York 22; Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, 1946.

In addition to Dr. Carr nineteen distinguished contributors nationally known in fields of dental education, research, clinical practice and public health, prepared this volume.

The book itself is developed in six parts—History, Education, Dental Practice, Research, Dental Socio-Economics and part six, the summary and conclusions.

Through the book the philosophy that dentistry in all its parts is and should be autonomous and not under the control of the medical profession is warmly supported.

Dentistry as an organized profession is one hundred and six years old. During this period dentistry has developed from a highly technical craft to a full-fledged profession engaged in an effort to maintain health in the mouth and the body as a whole. This book traces some of the steps taken during the century to bring dentistry to its present position as "a part of the great pattern of public health care."

In part three, Dental Practice, the problems of Dentistry in Industry, Public Health Dentistry, Dental Practice in Rural Areas and Dentistry for Negroes are discussed.

The chapter on Dentistry for Negroes deals frankly with the problem of both dental service for the Negro and also the many difficulties of the Negro dentist. Every fair-minded professional man could agree with the statement made at the close of the chapter that "the new perspective of dentistry should include the integration of all qualified and ethical dental practitioners into organized dentistry, regardless of race or religion."

The importance of research in advancing the knowledge of dental caries and the periodontal affections which "have long been known as diseases characterized by high attack rates with no effective available method of mass control" is very properly stressed. It is through research in these areas that dentistry may be able to make its greatest contribution to the public "as an agency of health service."

While it is to be regretted that a stronger case for dentistry as a health service could not have been presented, there is no doubt that "this monograph will be of value to the dentist, the the physician, the health worker and the lay person who desire a total view of the present status of this profession and its place in a broad health service."

A Practical Handbook of Midwifery and Gynæcology for Students and Practitioners. By W. F. T. Haultain, O.B.E., M.C., B.A., Obstetrician and Gynæcologist, Royal Infirmary, Edinburgh, and Clifford Kennedy, M.B., Ch.B., F.R.C.S., Assistant Obstetrician and Gynæcologist, Royal Infirmary, Edinburgh. Third edition. Cloth. Price, $6. Pp. 388, with 47 illustrations. William Wood and Company, Mt. Royal & Guilford Aves., Baltimore 2, 1946.

This is a small book which presents chiefly in outline form the essentials of obstetrics and gynecology. In the United States such reference books for students are no longer popular, but apparently in Great Britain they are. Since there was a ten year interval between the second and the present edition, due to the war, a considerable part of the book was rewritten and a few new chapters were added. The subjects are well presented and the advice given in regard to treatment is conservative and proper. There are only forty-seven illustrations in the entire book and in the recent edition many of them should be replaced by more important ones. In a practical handbook of limited size attempting to cover two important specialties the following illustrations are irrelevant; the development of the ovum (highly diagrammatic), malacosteon pelvis, Naegele's pelvis, Roberts' pelvis and five illustrations of instruments used for destroying a baby. It is also questionable whether gynecologic operations should be described and illustrated in a small handbook. Two illustrations show an operation for expanding the vaginal outlet. This operation is a rarity. In the section on artificial respiration the authors fail to mention the tracheal catheter, which is one of the simplest and most effective means of initiating respiration in the newborn. The authors consider the axis-traction forceps, particularly the Milne-Murray type, to be the perfect instrument. In the United States few obstetricians use an axis-traction forceps even in difficult cases. In the treatment of puerperal sepsis there is no mention of penicillin, presumably because this section of the book was written before the introduction of the drug. However, penicillin is mentioned in the treatment of gonorrhea. Treatment is not outlined for syphilis, although the pathology and diagnosis of this disease are described.

Aside from these minor criticisms the book should prove most helpful to students and practitioners who prefer to study subjects in outline form. The book is easy to read, and the type is clear.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ANESTHETIC DEATHS

To the Editor:—**What is the number of deaths which occur annually during general anesthesia? What is the number of deaths which occur annually during general anesthesia for tonsillectomy? What is the number of deaths under spinal anesthesia?** **John S. Mikell, M.D., Tucson, Ariz.**

ANSWER.—Definite answers to questions of this type are impossible (Safety of Anesthetics, Queries and Minor Notes, THE JOURNAL, Dec. 21, 1946, p. 1045). A recent paper by Bishop (Operating Room Deaths, *Anesthesiology* **7**:651 [Nov.] 1946) is pertinent. This paper, with the references accompanying it, together with the remarks on Morbidity in Maxson's textbook (Spinal Anesthesia, Philadelphia, J. B. Lippincott, 1938, p. 242) offer some statistical information and pertinent comment. The figures tabulated by Bishop from the U. S. Bureau of Census (542 deaths during tonsillectomy and adenoidectomy among 6,250 deaths during operations occurring over a period of ten years) are difficult of evaluation because the total number of operations done during the ten years is not available. Neither is information available as to the details of anesthetic and operative procedure employed. Unquestionably the death rate during general anesthesia for tonsillectomy and during spinal anesthesia is relatively high. Whether a death in either instance is due to the anesthetic method per se or to inexpert management, both surgical and anesthetic, is often difficult to determine.

An unfortunate concept exists in the minds of many physicians that tonsillectomy under general anesthesia is a minor procedure demanding only a minimum of professional skill and experience either anesthetic or surgical. Much the same attitude exists in some localities regarding spinal anesthesia. Surgeons may administer a spinal anesthetic themselves, or permit their assistant to do so, and then operate on the patient with little consideration for the technic of administering the agent or for the supervision of the patient's condition during the effect of the drug. The experienced anesthetist, on the other hand, looks on these two procedures as technically exacting, requiring the maximum of skill and experience to make them safe.

HYPERHIDROSIS OF THE FACE

To the Editor:—**A man aged 29 complains of either increased sweating on the right side of the face and head or decreased sweating on the left side (the second possibility seems more likely). Sweating elsewhere on the body is normal, although it is excessive in hot weather. Signs of Horner's syndrome are absent including ptosis of the lid, flushing and inequality of the pupils. Physical and neurologic examination are negative. Please discuss the etiology of this condition.** **M.D., Ohio.**

ANSWER.—Various possibilities exist to account for this man's complaints. Hypersensitivity to various articles of food, such as chocolate, or other agents, such as inhalants, may be responsible. Hypersensitivity to histamine as in the Horton syndrome may be considered. In this syndrome headache may be present with or without flushing, tearing and sweating. The symptoms and signs are usually present only on one side. Various psychiatric conditions may be present, such as anxiety states. On the other hand, an organic disease of the upper thoracic cord may be present, such as syringomyelia or a tumor of the cord. These affect the cells of origin for preganglionic fibers supplying the sweat glands of the face. The patient should be given neuropsychiatric intensive study.

EXFOLIATIVE DERMATITIS AFTER CHRYSOTHERAPY

To the Editor:—**Please discuss treatment of a patient with extensive exfoliative dermatitis of six months' duration following gold salt therapy for rheumatoid arthritis. Nicotinic acid was tried but was discontinued because of uncomfortable reactions.** **Alan A. Bassett, M.D., Little Current, Ont.**

ANSWER.—In cases in which the exfoliative dermatitis following the use of gold salts has persisted four or more months, treatment should include measures recommended for exfoliative dermatitis in general as outlined by modern textbooks on dermatology (for example, Ormsby, O. S., and Montgomery, Hamilton: Diseases of the Skin, ed. 6, Philadelphia, Lea & Febiger, 1943, pp. 198-211). At this late date it is not likely that the use of BAL (British Anti-Lewisite) or any other metallic antidote will have much effect.

Symptomatic treatment will need to be carried out for a long time. The following measures are regarded as useful:

1. A soothing bath should be taken once or twice daily. The patient should not remain in the bath long enough to permit the skin to become soggy or macerated. Directions for a soothing bath follows:

Cook 2 cups of bulk oatmeal in 1 quart of water for thirty to forty-five minutes in a double boiler. Allow to cool for fifteen minutes, then add ½ cup of baking soda. Pour the entire mixture into a gauze bag and tie shut. Place in a bathtub one half to three fourths full of water at about 90 to 96 F. The patient may stay in the tub a half to two hours, expressing the oatmeal mash through the gauze and applying it over the body. Wash off the mash thoroughly before leaving the tub. Dry by patting, not by rubbing.

2. A mild emollient like olive oil or olive oil in lime water may be applied every one or two hours.

3. As the process becomes less acute one should apply a mild ointment with a heavy base such as zinc oxide and 3 per cent icthammol. Measures 1 and 2 should be continued also.

Thereafter time is the main factor. Healing may take weeks or months. The residual pigmentation may persist for months or permanently.

INCIDENCE OF POSITIVE SEROLOGIC TESTS FOR SYPHILIS

To the Editor:—**What is the incidence of positive Wassermann tests as found in private physicians' offices, where routine blood Wassermann or Kahn tests are taken? What is the present day conception as to whether patients with positive blood reactions should be treated? Should treatment be administered to patients with positive Kahn tests without clinical symptoms if they are over 40, 50 or 60 years of age?**

C. Raymond Arp, M.D., Atlanta, Ga.

ANSWER.—The incidence of positive serologic tests for syphilis found in the private practice of medicine will vary enormously, depending on a variety of factors. Some of these are the geographic location of the physician (the incidence of syphilis is highest in the Southern and Southeastern states, lowest in the Northern and Northwestern states), the character of the physician's clientele (the incidence of syphilis is highest in patients in the lower socioeconomic levels, especially Negroes) and the special character of the physician's practice (for example, a dermatologist or a urologist might confidently expect the accidental discovery of greater numbers of patients with syphilis than an orthopedist).

The treatment of patients of any age discovered routinely to have positive serologic tests for syphilis depends on a large number of factors, all of which are discussed in such modern textbooks as Modern Clinical Syphilology by Stokes, Ingraham and Beerman (ed. 3, Philadelphia and London, W. B. Saunders Company, 1944) or The Modern Treatment of Syphilis by Joseph Earle Moore (ed. 2, 3d printing, Springfield, Illinois & Baltimore, Charles C Thomas).

CESAREAN SECTION AND REPAIR OF VENTRAL HERNIA

To the Editor:—**A secundipara has now been pregnant four months. Her first pregnancy was eighteen years ago. Since then she has had a perineal repair and suspension of the uterus. After the suprapubic operation she developed a large ventral hernia. Is a cesarean section indicated with repair of the hernia at the same time or should the patient be allowed to go into labor and the hernia repaired at a later date?**

Lowell G. Hunter, M.D., Milan, Ind.

ANSWER.—It is not sound obstetric judgment to perform a cesarean section in order to carry out other surgical procedures at the time of delivery. Therefore it is not proper to perform a cesarean section simply because it is desired to perform a sterilization, remove a so-called chronic appendix or, as in the case described in the query, repair a postoperative hernia. There are several reasons for this. First, the risk of death following cesarean section is distinctly higher than it is for vaginal delivery even when the operation is an elective one. Second, the additional operation may increase the hazards of cesarean section because of the increased likelihood of infection. Third, in the case of an extensive postoperative hernia the additional length of the trauma of operation and the prolonged time of anesthesia undoubtedly will increase the risk of the laparotomy. This patient should be permitted to deliver from below and, because of the previous perineal repair and the eighteen year interval, an episiotomy should be done. The ventral hernia may be repaired after the baby is a week old, but it would be preferable to postpone this operation for a few months.

VISUALIZATION OF GALLBLADDER

To the Editor:—A woman at one time had symptoms of mild subacute cholecystitis, chronic arthritis of the spine and high blood cholesterol (330 mg. per hundred cubic centimeters). She was given a low cholesterol diet for several weeks with resultant loss of a few pounds in weight. Recently after complete examination by another physician including gastrointestinal roentgenograms, a gallbladder visualization test and x-rays of the spine, she was told that her only trouble was chronic arthritis of the spine. It was further stated that she never had had any gallbladder disturbance because, if she had the diagnosis could be made only by an x-ray examination, which would always show such a condition if it ever had been present. I informed the patient that a person can have a definite gallbladder condition without the gallbladder visualization test showing any signs or defects of the gallbladder. Is this statement correct? Also is there very much difference in the diet of a person suffering from a subacute or chronic gallbladder condition from that of a patient with a high blood cholesterol?

Sidney Scheinman, M.D., New York.

ANSWER.—The gallbladder visualization test serves to show whether the gallbladder ducts are patent and will admit the dye. In addition, the dye sometimes supplies a background against which stones that would otherwise be invisible may be seen. Dye will enter a diseased gallbladder. It frequently does so when stones are present and will do so as long as the ducts are not completely obstructed. Whether the concentration of the dye will be as great in diseased gallbladders is a matter of debate. There are, however, other factors that will influence concentration, including an obese abdominal wall that gives an apparent lack of concentration and deficient absorption of the dye. Considering all these things it is quite correct to say that gallbladder disease may exist in the presence of a negative Graham-Cole test. It should be added, however, that this does not happen often.

The statement that x-ray examination would always show such a condition if it ever had been present may be challenged. Work has been published to show that nonvisualizing gallbladders may later visualize well. In one series of published cases the dye was administered orally in all instances. In another series the dye was injected intravenously in all instances. By either technic it was found that positive tests (that is, nonvisualizing gallbladders) later became negative. This improvement was credited to medical management but, whatever the cause, the facts are clear.

The diet for hypercholesteremia is not essentially different from the diet used in gallbladder disease. As a matter of fact, gallbladder disease is one of common causes of hypercholesteremia. However, one should be sure that no other cause for hypercholesteremia exists.

REBOUND TENDERNESS AND ROVSING'S SIGN

To the Editor:—Please discuss the significance of "rebound tenderness" in abdominal disease and the physiologic basis for its production. Is this term synonymous with Rovsing's sign?

M.D., Illinois.

ANSWER.—Rebound tenderness is an important diagnostic finding in the examination of the abdomen and always means involvement of the parietal peritoneum. Whereas tenderness on direct pressure is readily elicited in inflammatory lesions involving the abdominal viscera, the sudden release of the examining hand does not result in pain unless there is involvement of the parietal peritoneum. Unquestionably the physiologic mechanism for the production of pain is that in the presence of inflammatory involvement of the parietal peritoneum the sudden release of pressure will result in movement of the peritoneum and pain, similarly to that which occurs when pain results from movement of the diaphragm if the serosal covering of the diaphragm is inflamed.

Rebound tenderness is not synonymous with Rovsing's sign, which is pain referred to McBurney's point when pressure is exerted on the descending colon. This finding is not infrequently present in chronic appendicitis as well as in acute appendicitis. Presumably the increase in intracolonic pressure produced by compressing the descending colon and its transmission to the lumen of the appendix are responsible for the pain. Rebound tenderness was first described by Blumberg.

EFFECTS OF ANTIPYRETIC DRUGS ON MEASLES ERUPTION

To the Editor:—What is the effect of antipyretic drugs given during the prodromal and preeruptive stages of morbilli? Does the lowering of the temperature tend to prolong the period of eruption?

Verna M. Pennington, R.N., Lennox, Calif.

ANSWER.—Antipyretic drugs administered during the preeruptive stage of measles ordinarily do not affect the duration of eruption. At one time it was reported by some clinicians that the administration of aminopyrine during the prodromal stage of measles modified or shortened the duration of the rash.

VAGINAL DOUCHES

To the Editor:—Included in the answer to a query in *The Journal* Aug. 10, 1946, page 1254 was the statement "for those who insist, douches should be used not oftener than once or twice a week at most." I question the value of douches quite aside from the fact that it requires a lot of work for a busy, tired, half-sick woman to prepare, take, and clean up after a douche. However, specialists in gynecology still prescribe vinegar douches daily for a month or six weeks at a time as an adjunct to the treatment of trichomonas vaginitis. Please discuss the advantages and disadvantages of douches.

M.D., Florida.

ANSWER.—Vaginal douches are a mechanical means of removing discharge and also of reducing odor associated with excessive vaginal discharge. There is little documentary proof that douches per se are especially therapeutic. The contention has existed but has not been completely proved that the vaginal acidity can be reestablished by the use of vinegar (acetic acid), lactic acid and other acids in the daily douche. A disadvantage to douches is that they remove the discharge and secretion and may interfere with the material for satisfactory microscopic examination unless there has been a lapse of a few days since the last irrigation. Some prefer to use a douche solely for cleansing purpose shortly after completion of the menstrual period and also late in the puerperium to remove lochial discharge. Douches are unreliable for the production of pelvic hyperthermia. Where materials are deposited in the vagina in association with treatment the douche may be employed occasionally to make sure that there is not an excessive accumulation of the therapeutic agents and its vehicle. Many gynecologists avoid the use of douches except for cleansing purposes and astringent values in the treatment of cervicitis. Occasionally a deodorizing agent may be employed to reduce the odor of advanced cervical carcinoma.

PROPHYLACTIC DIGITALIZATION

To the Editor:—Is there any evidence that the administration of digitalis before operation to a compensated heart patient is valuable in preventing the onset of congestive heart failure? The patient in question has never had congestive failure. Does full digitalization of a compensated heart have any value in preventing the onset of heart failure?

Harry R. Deane, M.D., Bay Pines, Fla.

ANSWER.—The term "heart patient" is rather indefinite. The query could be answered more intelligently if the type of heart disease or disorder was known. Generally speaking, the principal indication for the use of digitalis is congestive heart failure. It is surprising how seldom congestive heart failure comes on as the result of a well conducted surgical procedure. Peripheral vascular collapse or the onset of an abnormal rhythm occurs much more commonly in the wake of a surgical operation, and neither of these is benefited by digitalis. Indeed, digitalis is usually contraindicated in such emergencies. Latterly, some evidence has been produced to indicate that digitalis increases the tendency of the blood to clot within the vessels. This is a distinct disadvantage following surgical procedures. There is lack of unanimity of opinion among cardiologists concerning the ability of digitalis to prevent the onset of congestive failure in the compensated heart but, considering the possible disadvantages, it would seem unwise to administer it without a direct indication.

There is a group of "heart patients" in which the prophylactic use of digitalis might be countenanced. These are patients with chronic auricular fibrillation. The heart rate is usually greatly increased in auricular fibrillation following surgical procedures and digitalis control might be of advantage in these cases.

TREATMENT OF EPIDEMIC KERATOCONJUNCTIVITIS

To the Editor:—Please discuss the use of human globulin in the treatment of virus conjunctivitis and superficial punctate keratitis.

Harold L. Snow, M.D., San Pedro, Calif.

ANSWER.—Human plasma has been used in the treatment of epidemic keratoconjunctivitis, which is undoubtedly a virus disease. This disease is associated with a superficial keratitis. The plasma has little or no effect on the superficial keratitis once it has developed, but has a profound beneficial effect on the disease if given early. It is doubtful that human globulin or human plasma would be of much benefit after the disease of the cornea or conjunctiva is well established, since the virus is undoubtedly fixed in the cells and may not be reached by the antiviral bodies. Similar experience has been found with use of human globulin with other types of viral diseases.

References:

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